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ABSTRACT

Final Reports of nine project studies emphasizing knowledge utilization in education are comprised in this volume. Descriptions, rationale, conclusions, notes and references, and summaries are given for each of the specific projects and dealing with: 1) awareness and knowledge utilization (emphasis was placed on the Educational Resources Information Center (ERIC) system, its services, and products); and with development of 2) a film prototype; 3) a prototype of an instructional package to improve student and teacher communication competencies; 4) educational "news" audio tape cassettes; 5) a magazine for educators; 6) film loops containing new information designed for an informal environment; 7) a learning game prototype; 8) a "natural" history of ideas approach to knowledge utilization; and 9) a commercial or Public Broadcasting System television experiment. Related documents are ED 061 468, and SO 005 889 through SO 005 896. (SJM)

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Final Report

Contract No. OEC-0-72-0243 (519)

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TOWARD A RECONCEPTUALIZATION OF KNOWLEDGE UTILIZATION IN EDUCATION

Volume 3 of 8 Volumes

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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FINAL REPORT: PILOT STUDY #1

Awareness and Knowledge Utilization

Project Coordinator: Tom Deats

Summary

This project was designed to be a prototype of an "information" or advertising campaign directed toward educators, promoting various U.S. Office of Education information services and products and the ways in which these might be useful to educators. For purposes of this study, emphasis was placed upon the Educational Resources Information Center (ERIC) system, its services and products. The major hypothesis of this study was that educators would not actively seek out "information" from such systems as ERIC even though they were aware of the system and its services. Various advertising and promotional techniques were considered for development and use in this study including direct mail, posters, and the production of an 8mm animated film for use in a film loop machine. The major hypothesis, primarily because of limited testing, was neither confirmed nor denied by the results of this study.

Rationale and Description of Study

From a study of the various newsletters, brochures, booklets, etc., of the ERIC system clearinghouses and their related Regional

Labs, Material Centers, and Research and Development Centers, it was noted that many of those involved in the development and dissemination of educational research information assume that increased awareness in the "target audience" is closely related to increased utilization. This often appears to be stated as both a necessary and sufficient condition for information and innovation utilization.¹ It was to test the viability of such assumptions that this pilot study was developed.

An implicit if not always explicit assumption behind such views is that awareness of an "information" system can by and large be equated with approval of such a system. For example, the low levels of utilization of particular information systems are often viewed as problems which could be "solved" largely by simply developing awareness of the system in the target audience (e.g., school teachers). The hypothesis of this study was that even if they were "aware" of the existence and services and products of ERIC, this awareness would not "significantly" increase the utilization of the system by educators.

In short, awareness of the ERIC system is not likely to be a sufficient condition for utilization of that system. Indeed, it might not even be a necessary condition if "awareness" is conceived of only in terms of a highly rational cognizance.² While the necessary condition for "awareness" of an educational data system may be mass media promotional "messages," the sufficient condition inheres in the importance of such a system to a particular epistemic community.

Because so many attempts have been and continued to be made to advertise such data systems as ERIC on the assumption that awareness necessarily leads to utilization, this study was developed to use similar methods (e.g., mass media) to question and test the validity of such assumptions. Originally it was planned to direct a multi-media campaign advertising ERIC to school teachers and other educators. However, due to several factors, including the inability to develop a satisfactory means or method of "measuring" utilization which would rise above the level of merely totaling requests for data, these various approaches were not fully developed or exploited. Two direct mailings of a specially prepared brochure about ERIC, an 8mm animated film for use in a film loop machine were developed, along with several designs for posters. These latter products were not field tested, however.

Direct Mail Campaign

Two different mailings of a brochure (see attached copies) were made. The text of the brochures was based upon that developed and utilized by the ERIC document reproduction service (EDRS) contractor, Leasco.

The first mailing was made in February to all public school principals in the Iowa City school district (N-21). Included as part of the brochure was a coupon-like section which could be filled out and returned by the recipient if he or she was interested in obtaining additional information regarding the ERIC system. The

returns of these information requests were used to "measure" the response to the mailing. Of the 21 school principals who received the brochure in this first mailing, 4 returned slips requesting additional information.

A second, more extensive mailing was made on a state-wide basis to principals selected from a list containing all of the state's high schools--public and private. In all, 281 brochures were mailed to Iowa high school principals randomly selected from the original list of more than 500. There were 24 slips returned requesting additional information.

All requests for additional information were forwarded to the ERIC system and a spot check among the principals requesting information indicated that they had received literature regarding the ERIC system.

The low level of response to these two mailings cannot necessarily be interpreted as confirming the major hypothesis, for the low response may only be an indication of the limited appeal of such traditional mail campaigns or that many of these educators were already "aware" of the ERIC system. The data does not, on the other hand, deny the validity of the major hypothesis.

8mm Film Production

To a great extent the majority of the attempts to advertise such "information" systems as ERIC have been limited to the print media, such as brochures, newsletters, etc., and in some cases,

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film strips with recordings. But such approaches tend to require, in varying degrees, expenditures of time and effort on the part of educators to acquire and utilize any data contained in them. Therefore, it was thought that the development of an animated, sound, color film packaged in a film loop cartridge for use in a projector in the faculty lounge of schools, main offices, classrooms, etc., might be a device which would not only be easy to use, but would be accessible to every teacher in a school and would enable the presentation of "information" about ERIC to break out of the more static and linear printed formats.

A two-minute color animated film with sound utilizing quick cuts of still photographs and "messages" about ERIC was made. Production problems precluded field testing this film in an adequate manner and thus no valid data on its "effectiveness" are available. Ideally, however, several such film loops could be mass produced and distributed on a wide basis much as printed materials are now presented. Limitations of the present study did not, of course, permit mass production. The film which was made for this study can, however, serve as a prototype for the creation of other such film loops.

Poster Designs

Several poster designs were developed for possible testing through distribution by local media centers. The posters were designed in such a way that the final product could range in size

does not "match-up" with the views of education and teaching held by many teachers. This, then, is a strategic difference in orientation, and is by and large not "solvable" by tactical communication programs such as advertising campaigns.

The "relevance" of the ERIC materials for many teachers is largely different from the relevance of the same materials for those people who contribute to and operate the ERIC system. There are numerous studies which clearly indicate that the mass media do not greatly contribute to change or alteration of people's opinions on matters considered significant and vital by those individuals.³ Mass communication persuasion methods are most likely, according to the empirical evidence, to reinforce existing opinions of individuals rather than change them.⁴

Any attempt to change a teacher's views of the ERIC system and educational research data, or to merely "inform" teachers of ERIC and similar systems, must deal with strategic factors--and these cannot, for the most part, be "reached" through mass media campaigns wherein the "messages" may differ greatly from the existing communicational realities of the target audience. And human communicational realities are created through people talking to one another. What ERIC (for example) "is," and what its values may be, are created not by mass-produced "messages," but only in and through conversations within specific epistemic communities. Thus the necessary condition for "awareness" of ERIC may be some promotional "messages," but the sufficient condition inheres in

the importance and relevance of such "messages" for people in a given epistemic community.

People are more likely to utilize those data and "information" systems which appear to be useful to them. Thus one can try to "match" the "messages" about ERIC (for example) with the existing communicational realities of teachers, or attempt to alter the strategic communicational realities of teachers to "fit" the existing "messages" about ERIC. The first might possibly be accomplished through the use of mass media techniques and mass produced "messages," but the latter task--that of altering strategic communicational realities--can largely be accomplished over relatively long periods of time (if at all) through the ways people invent to talk about their world and their relationships to that world.

Given the above, it appears that the most effective use of mass media techniques and mass produced "messages" would be in those areas wherein the "messages" match or agree with the strategic views of the audience rather than in attempts to alter or change those strategic views. Mass media techniques are most likely to be useful in "changing" relatively non-strategic or non-vital viewpoints and thus could (and do) encourage change in fashions and fads. Thus, educational "information" dealing with non-strategic fashionable teaching practices might possibly be rather effectively "marketed" through mass media technology if such "information" does not deal with the vital questions of the "worth" or "value" that such practices may have for education.

from small desk top "models" to larger wall posters. The rationale of these designs was that such posters could serve as an effective medium of "communication" within school systems. For example, posters could be distributed through local media centers on a demand basis, or simply included with materials such as films which have been requested by schools. This portion of the pilot study was not field tested primarily because no adequate "test" or measurement of the "effect" of such posters short of those which would require governmental approval could be developed in the time available.

Conclusions

One of the biggest and most difficult problems in this area is the development of a satisfactory test instrument which will give an indication of the "effectiveness" of promotional campaigns. As noted earlier, from the communication point of view of this study, the sufficient condition for "information" utilization always inheres in the salience of the "information" for a specific epistemic community in time and location. The traditional approaches to "testing" the impact of "information" in or on an audience largely fail to take into account the ways in which people in a given epistemic community talk about what is important to them in that community context.

For example, at present it appears that the ERIC system people have a view of education and public school teaching which

Notes and References

¹See Everett M. Rogers, Diffusion of Innovations (New York: The Free Press, 1962); and Ronald G. Havelock, Planning for Innovation Through Dissemination and Utilization of Knowledge (Ann Arbor: Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, The University of Michigan, 1971).

²Robert Mason, "An Ordinal Scale for Measuring the Adoption Process" in Studies of Innovation and of Communication to the Public, Studies in the Utilization of Behavioral Science, Vol. II, ed. by Elihu Katz, et. al., (Stanford, California: Institute for Communication Research, Stanford University, 1962), pp. 101-116.

³See, for example, Joseph T. Klapper, The Effects of Mass Communication (Glencoe, Illinois: The Free Press, 1960); Bernard Berelson and Morris Janowitz, eds., Reader in Public Opinion and Communication (Glencoe, Illinois: The Free Press, 1950); Elihu Katz and Paul F. Lazarsfeld, Personal Influence (Glencoe, Illinois: The Free Press, 1955); Carl I. Hovland, Irving L. Janis, and Harold M. Kelly, Communication and Persuasion (New Haven: Yale University Press, 1953); Carl I. Hovland, et. al., Experiments on Mass Communications (Princeton, New Jersey: Princeton University Press, 1949); Bernard Berelson and Gary A. Steiner, Human Behavior: An Inventory of Scientific Findings (New York: Harcourt, Brace & World, Inc., 1964); and Elihu Katz, et. al., Studies of Innovation and of Communication to the Public, Studies in the Utilization of Behavioral Science, Vol. II, (Stanford, California: Institute for Communication Research, Stanford University, 1962).

⁴Klapper, op. cit., pp. 49-50.

FINAL REPORT: PILOT STUDY #2

Development of Film Prototypes

Project Coordinator: Lee Thayer

For the past several years, those of us associated in this project have used and assessed the usefulness of most of the available films on "communication," as "communication" relates to the production, distribution, and consumption of information. While many of these films are useful in getting across certain aspects of the process, most are not useful in getting across other, equally fundamental, aspects of the process. For example, the way in which "communication" is typically related to controlled or manipulated "change" distorts certain important aspects of the way in which "communication" is related to non-controlled change.¹

At the same time, we have long felt that alternative views of the "communication" process might be indirectly effective in facilitating or enhancing the efforts both of those who produce, distribute, and consume educational "knowledge," and those who would help them to do so. On this basis, and to this end, we undertook to make a short, inexpensive, animated prototype film which we anticipated would present some basic dimensions of that alternative in a meaningful way.

The first version of this film was developed, and reviewed and assessed (in limited use) in July, 1972. (The script is presented as

Appendix A of this report; a copy of the film is also being made available to NCEC as part of our final report on this project.) On the basis of reactions to this first prototype, we diagnosed several shortcomings and needed modifications. A second version of the film was thus being developed.

In this second version, we believe this short film would have value in the training of educational "extension agents," and other specialists and consultants. The main idea of the film (entitled "This Thing About People") is that once a person has a "workable reality" in his own mind about something or someone outside of himself, that "workable reality" will stand in the way of his seeing a better alternative, or of considering a better alternative offered to him. To the extent that the film is effective, we believe that its use could help its users vicariously to experience one of the central "barriers" to innovation and further "knowledge" utilization, and therefore to discuss in a systematic and rational way what might or should be done about it in particular circumstances.

Thus the film could be used in the training of educational extension agents, and could then be used by them in discussing human, organizational, technical, and economic "barriers" to knowledge utilization in specific school systems.

This second version of the film was completed in mid-January, 1973. Thus, though we have had little opportunity for systematic assessment, feedback thus far suggests that the film could be quite effective if properly used, and we recommend further development of it, along with a user's guide, for possible use in several of NCEC's programs.

Notes and References

¹See, e.g., Lee Thayer, "On Communication and Change: Some Provocations," Systematics (Vol. 6, No. 3), December, 1968, pp. 190-200.

APPENDIX A

"This Thing About People"

Scene opens, long shot of main character walking across broad open space with bright sun overhead, two or three widely spaced trees casting shadows. MC sweating, hot, mopping forehead. He is obviously Stone-Age man in costume.

He walks through shadow of tree, stops on the other side, scratches his head in wonder and walks on. Walks through shadow of next tree, gets on far side, scratches his head and backs into the shadow. Obviously pleased by the cooling comfort of the shadow, lays down beside rock and goes to sleep.

Shadow moves as time passes and sun moves in sky, MC awakens hotter and more uncomfortable than before. Gets up in fury and goes over and starts kicking the trunk of the tree.

MC turns and walks toward camera, costume changes with every step or two from Stone-Age to Greek toga to Black Middle Ages peasant garb to a fancy roccoco style to Elizabethan style and reaches face-on the camera in modern dress. Talks directly into camera. (Begins talking as he begins walking toward camera.)

Indecipheral muttering.

MC: That's the way it all began. Things haven't changed much over the years. There's this something about people. They get a notion in their heads about the way things are or ought to be, and if it turns out the world doesn't fit their notions of the way the world is, they begin to try to kick it into shape.

Oh, you don't see many people going around kicking trees any more--at least not without steel-toed shoes or a bulldozer. But it's still that way with people. We still kick people around--or try to--when they don't behave the way we think they should. If the other guy doesn't fit our image of him, we think there's something wrong with him.

As I say, there's this something about people that makes us that way. That's probably why the way we think about communication leads us into more problems than it solves. It wouldn't have to be that way. If we understood this thing about people, we'd think about communication differently, and

Have him do things in his different costumes as he moves forward in this monologue.

then lots of things would be quite different.

Sometimes I have these fantasies about how different things would be if people really understood this thing about people, and what it means for the way we think about communication.

But let me show you what I mean. For example, this is the way things went at my house this morning:

Wife: mutters.

Wife: mutters.

Wife: Another lousy day.

Appropriate beautiful day music.

MC: It's a beautiful day.

Wife: That's all right for you to say; you're a man.

MC: What is that supposed to mean?

Wife: Oh, just forget it, you wouldn't understand anyway.

Boy: You are, too!

Girl: I am not!

Boy: You are so!

Girl: I am not, I am not!

Wife: What do you want for breakfast-- eggs or oatmeal?

MC: Oh, I guess I'll have eggs.

Wife: What's the matter, don't you like my oatmeal any more?

Scene: Bed, wife getting up. Goes to scale.

Goes to mirror to comb her hair. Every time she combs it down it twangs back.

Goes to kitchen in slouch and grump, where MC is sitting at table.

MC goes to window and looks out, sun shining, birds singing, flowers and trees in blossom, etc.

Two youngest kids come chasing and fighting each other through kitchen.

They go off scene as pitch and pace of voices increase.

During all of this, wife is slouching around, preparing eggs, banging pots and pans and

From off scene: voice of oldest
daughter: Motherrrrrrrrrrrrrrrrrrr!!

Wife: (shouts back) What is it!
(grating voice)

Daughter shrieks: I'm totally and utterly destroyed! My life is ruined! I promised Andy I'd eat with him at the cafeteria today and my pink blouse is dirty!

Wife shrieks back: Well what'd ya want me to do about it? If you weren't such a slob, you'd have your stuff when you needed it.

Daughter's voice: (whining and crying)
But Motherrrrrrrrrrr!

Wife: Stop being so dramatic and get down here for breakfast. You're going to be late for school.

bangs plate of eggs down in front of MC.

Kitchen sounds, television sounds, sounds of the two young children still hasseling each other, and sounds of elder daughter still anguishing in the background, and wife still muttering.

Scene fades out with shot of MC's expression over the plate of eggs.

MC: Well, that's the way it was at my house this morning. But, like I say, it wouldn't have to be that way. I keep having this fantasy that if people understood this thing about people and thought about communication differently, things would be a lot different. If-- well, let me show you what I mean.....

Scene: Same face-on of MC as before.

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Wife: mutters.

Wife: mutters.

Wife: Another lousy day.

MC: In what way?

Wife: Look at my hair, and look at that, I've gained three pounds in the last week.

(Same basic sequence of scenes as before.)

Wife gets out of bed, goes to scales.

Wife goes to mirror, tries to comb hair,
it twangs back up, etc.

Wife goes to kitchen where MC is at the table.

MC goes to window looks out, same beautiful scene and sound effects as before.

MC: I guess that would be enough to make a person miserable--if a person thought those were the most important things in his life this particular day. I feel great today, and it's beautiful outside.

Wife: That's easy enough for you; you've got your teaching and people appreciate what you do, and it's just different with a man.

MC: It is? If you're miffed about the way you look, that doesn't stop the sun from shining. You look great to me.

Boy: What would you know about it, you're just a dumb, stupid girl!

Girl: Well, your friend Cindy is a girl and you don't think she's so dumb and stupid!

Boy: Well, she's different!

Girl: So am I.

Wife: What do you want for breakfast, eggs or oatmeal?

MC: You're the one who's having trouble making the day measure up. What do you feel like?

Wife: Well, I can't see how a pan full of mushy oatmeal is going to help the way I feel very much.

MC: Eggs it'll be then.

Daughter shrieks: 'Motherrrrrrrrr!'

Wife: Would you watch these eggs, dear, I just have a hunch what her problem is, and it isn't going to get any better by long distance.

Sounds of TV in background, younger children still talking.

MC puts his arms around wife and nuzzles her.

The two younger children come running through as before.

They go off as before, but muttering in apparently conversational tones.

Wife goes off. Voices of mother and daughter, unintelligible, discussing something off stage.

MC dishing up the eggs as scene fades.

MC: See you soon, have a good day.

Wife: It is kind of a pretty day.

MC: See what I mean? Like I say, there's this thing about people, and if we don't understand that we end up getting ourselves in all kinds of communication troubles, and play all sorts of silly communication games. Oh, I don't mean that wars are silly, but maybe they're unnecessary. The communication games people play! The things they get themselves into. Well, lemme show you what I mean. I'm a teacher, see, and the sorts of things we teachers get into.... Well, lemme show you what I mean. This is the way it was at my school this morning....

MC: First, there was this scene in Miss Beaufort's mathematics class....

Background of classroom noises and teacher talking over them, but unintelligible.

Miss B: John, you're not paying attention.

John: mutters....

Miss B: What did you say? (sharply)

John: I said, who cares about this dumb stuff anyway?!

Miss B: That'll be enough out of you, young man or it's off to the principal's office.

John: mutters something under his breath. Fading into typical classroom noises with teacher droning on again.

MC: Then there was this scene in my own current events class....

Two younger children, older daughter go out back door with school books in hand. MC with briefcase in hand, nuzzles wife affectionately.

Wife looks at sun, birds, etc. (same as before). Standing in doorway with back to audience.

Superimpose MC face-on as before.

Scene of typical classroom of junior high kids doing the conventional things, making the conventional ruckus, etc.

Miss Beaufort notices John, one of the students, not paying attention.

Scene: Back to MC face-on.

Typical noises and ruckus.

1st student: Well, I don't think he's a good president! I think he's made all sorts of bum decisions.

2nd student: Where do you get off with that stuff? Everybody knows he's one of the best presidents we ever had. Just because he's had the toughest decisions to make.....

3rd student: Well, according to Walter Cronkite.....

4th student: What does Walter Cronkite know! That's no way to determine whether the president's foreign policy is any good or not.

MC: How do you think we should decide, Linda?

3rd student: Geez, here it comes now! We're really gonna get the party line.

5th student: Well, let 'er talk!

3rd student: She talks all the time and never says anything.

MC: Then there was this scene in the cafeteria.....

1st boy: Hey, there's Rin Tin Grin!

2nd boy: Hi there, Tinsel Teeth!

3rd boy: Hey, shut your mouth, the reflection is blinding me!

Girl: (almost in tears) You guys better leave me alone or I'll report you!

Scene: Typical classroom again.

Scene fades out with argument increasing in intensity and MC trying to get things organized.

MC face-on again.

Scene: two or three boys and one girl in cafeteria line. Girl wears shiny braces on teeth.

Scene fades out to continued teasing like "just as long as you don't bite us," "take off that armor plate and fight like a man," "yeah, stop hiding behind U.S. Steel," etc. And agitated near tearful responses of girl.

MC: Well, those are just some of the things that went on where I work this morning. Like I say, I keep having these fantasies that if people really understood this thing about people and thought differently about communication, things wouldn't be that way. For example..... But let me show you what I mean.

MC front-on again.

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Scene: First classroom scene again.
John not paying attention.

Miss B: (at end of class) John, will you come to my office after class, please?

Miss B: You didn't seem to be with us in class today, John.

John: Yeah, I guess not. I really don't dig math, you know.

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Miss B: Yes, you've mentioned that before. Your good friend Keith seems to dig it.

John: Yeah, well, I can't know about that. If he likes it, it's his business.

Miss B: But I've heard you say that math is "dumb stuff" and why does anybody like this "dumb stuff" anyway, haven't I?

John: Yeah, I guess you have. But that's true.

Miss B: Keith doesn't seem to think it's true. So aren't you really saying something about yourself, and not about "math"?

John: What d'ya mean by that?

Miss B: Well, if your friend Keith likes math, and you don't like math, but you like him, doesn't that mean that you're not really saying anything about math, but about the way in which different people see things different ways, and that different people like different things?

John: Yeah, well, so...?

Miss B: So, if you want to fritter your time away daydreaming in math class, you're doing it because you want to. You can't blame it on that "dumb stuff," because your friend Keith and I aren't buying that as an excuse.

John: Yeah, well, what difference does that make?

Miss B: It doesn't make any difference to me. What difference does it make to you?

John: What d'ya mean by that?

MC: Then there was that scene in my own current events classroom, you remember?

1st student: Well, I don't think he's a good president!

2nd student: How can you say that. How do you arrive at that conclusion?

1st student: Well, because he's made all sorts of bad decisions.

3rd student: Give me some examples of what you mean.

4th student: Well, according to Walter Cronkite....

5th student: Wait just a minute! There's a great deal of difference between what happened and what Walter Cronkite or any reporter says about it.

4th student: Yes, I agree. But there is no guarantee that what you say about it is any more true, is there?

5th student: Well, no, but it depends upon what we're trying to accomplish. If we want to talk about what is going on, we'd better get back to some of the specific facts.

~~MC:~~ For example?

Scene fades out as discussion continues.

Back to MC face-on.

Typical classroom again.

Scene fades out and in again with discussion still going on.

5th student: Well, for example, we would need to know who did what and when. Not only that, but it seems to me that we would have to establish our criteria in advance. What would constitute a "good" or a "bad" decision. Can we sit here and decide that for all time? Maybe a lot of other things will have to happen in history before we can say a decision was "good" or "bad." It's always been that way in history, hasn't it?

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Scene fades out with continuing discussion.

MC face-on.

Then there was that third scene in the cafeteria. I tell you, it seems to me sometimes like we're never going to learn this thing about people, like we're never going to understand this communication business between people. If we did, then it might have turned out something like it did in my fantasy, something like this....

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Cafeteria scene again.

1st boy: Hey, there's Rin Tin Grin!

2nd boy: Yeah, hi there, Tinsel Teeth!

3rd boy: Hey, shut your mouth, the reflection is blinding me!

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Girl: Yeah, well don't come too close, the dentist said hot air will tarnish them!

All laugh

Scene fades out.

MC face-on again.

MC: See what I mean? There just seems to be that thing about people that we can't get straight

and because we don't, we seem to get into all kinds of communication problems.

Scene of MC kicking tree again, but in modern clothes.

MC again.

And you know, I think there's something more to this than my fantasies about it. I think things could really be a lot different if we thought about communication a little differently than we do. Don't you?

Scene fades to black--or to credits at end.
X-feet of black here to shut down camera
for group discussion.

After discussion, MC again.

You know, I said a lot about this thing
about people, and about how we don't
understand communication very well, and
about the kinds of problems we create
for ourselves because of this thing.
But I guess I didn't really explain very
well what I meant. Let me see if I can
do that now.

Pulls down a movie screen, make it flicker
like old-time projector.

In all that follows, MC is standing beside
the screen or walking in front of it, etc.,
talking over the same scenes that played
previously, excepting his continuities.
(All scenes that follow are on this pulled
down screen.) Voice: All MC.

Well, you remember how it all began.

(Pause)

Like our ancestor here. He got it into
his head that it was the tree that was
cooling him off.

That's where this thing about people
begins. We have to figure things out.
We've got to understand, to know. Like,
this fellow knew that it was the tree
that was cooling him off.

Once he knew that, it got in the way of
understanding what was really going on.
And, just like we do even today, if the
world doesn't fit our understandings of
it, we start to take it out on the world.
He thought the tree wasn't doing what it
was supposed to be doing. So he tried
to kick the tree down. It didn't occur
to him that it was his faulty understand-
ing--not the tree--that was giving him
trouble.

It's the same with people. You remember
how things went at my house this morning:
Things weren't the way she wanted them
to be for my wife this morning. So for
her it was just another "lousy day."
Then there was this little husband-wife
game we played. People get themselves
into all kinds of trouble because they
usually pretend they are talking about
things "out there"--like whether it's a
lousy day or not.

(Scene A)

(Scene B)

That "is" often trips us up. We can say that "Things are thus-and-so." But we can only mean "That is the way things look to me right now." It's easy to forget that--this thing about people.

But, if we all understood it, and didn't forget it, like I said, things might be different. It could have been like this:

(Scene E)

In this case, I didn't pretend she was talking about the day when she said "another lousy day." I assumed she was talking about the way she felt. If someone else is depressed, that doesn't stop the sun from shining--for me.

It has always seemed to me kind of crazy to get into a big argument over whether the sun is shining or not, when all you have to do is look out and see. But this thing about people: people do it, don't they?

Kids learn to hassle each other pretty early through this "is" business.

For example, when my son said to his sister, "You are too a so-and-so," she fell right into it. She had already learned from watching other people that she was supposed to believe that he was talking about her. He wasn't. He was talking about only one tiny part of the way he saw her at that moment. Or, maybe he just wanted to play an ornery game and she didn't know it was just a word game.

(Scene C. May need to be replayed, or use stop-time to delay)

If she had, it might have turned out this way:

If all girls are dumb and stupid, how come he likes Cindy, my daughter reasons. Not bad. She calls his hand, and they go off talking about what they really wanted to talk about. Amazing, isn't it?

(Scene F)

There's this thing about people: there's no way of saying everything about anything, so we have to do a lot of filling in.

Like, when someone asks a question:

Does she really want to know whether
I want eggs or oatmeal for breakfast?--

(Scene D)

Or is she just trying to fuss with me
because she can't get along with herself
this morning?

My eldest daughter's 15--and the way
teenage kids get hung-up about the most
trivial things! Boy, can they set off
an explosion if the fuse is already lit.

So my wife, still upset with herself,
says "Stop being the way you are." Like
stop walking the way you do or talking
the way you do, or looking the way you
do. That's impossible. But how often
do we get into it?

Maybe you have to accept people for what
they are--for the way they are right at
that moment.

(Scene G)

The way things are--the way people are--
is given, just like the tree. It doesn't
do much good to try to change the way
things are.* Maybe it makes more sense
to try to change the way we understand
them--the way we see them.

*(Flashback to end of Scene A--kicking
tree). Back to Scene G.

It's the same everywhere, at home, at
work, at school, at play. Our troubles
with other people often stem from trying
to change them instead of taking them
for given and trying to better our own
understanding of what's going on.

Remember Miss Beaufort's math class?
She had it all figured out, didn't she?
That John was a trouble-maker, and that
the way to deal with trouble-makers is
to come down hard on them.

(Scene H)

Well, she was overlooking one thing:
that the world is not necessarily the
way she sees it. She was assuming that
the circumstances are given and that
people are changeable, when it's just
the other way around, isn't it?

For example, when she talks to him
privately, in my re-run of how it might
have been, she herself says that differ-
ent people see things in different ways,
and that different people like different
things. See what I mean?

(Scene K)

Like, we know these things about people, but when one of us begins to pretend that he isn't one of us--that his own perceptions and likings and understandings are not subject to error--then trouble begins.

What she said to John was that he could fritter away his time in class if he wanted to, but he couldn't blame it on the belief that math was "dumb stuff." Because that isn't in the nature of math, but in the nature of people.

Usually, I behave just like a people. I remember my own current events class this morning. It's easy to get into an argument over whether someone is "good" or "bad," or "right" or "wrong."

(Scene I)

I was letting the kids make two unnecessary mistakes. First, we should all have begun with the understanding that good and bad, right and wrong, are not qualities of the person observed, but are evaluations made by those doing the observing. Second, none of us should make it so easy for himself or for other people to forget that there are two levels of "reality" or whatever you want to call it.

(Scene L)

There is "what-is-going-on": this happened, or it did not. That happened, or it did not, and so on. But there is also "what-it-means-to-humans": Was this thing that did or didn't happen good or bad? What does it mean? And meaning, we often forget, is something that exists only in people. It never exists in events or in facts.

Well, that's this thing about people. We often forget that when we start talking to each other.

Like the scene in the cafeteria. The boys were putting her on--just for fun. She took it seriously. She thought they were talking about her--she believed that what they were saying was what she was.

(Scene J)

But she didn't have to. She could have realized that there is no necessary relationship between what people say and the way things are.

(Scene M)

She could have realized that words are often no more than playthings, and joined right in the game.

Well, as I said, I think there's something more to this than my fantasies about it. I think there's this thing about people.

(Viewing screen fades to dark--flickers out)

If we don't see it, if we aren't on guard against it, if we just don't understand it--then we get ourselves into all kinds of difficulties. Some people call them "communication problems."

I don't.

(Replay Scene A on screen to point of frustration over being hotter when shade moves while asleep) MC beside screen as before.

I think there's this thing about people. We have to interpret what's going on. Once we do, our interpretations get in the way of understanding what's going on. Like our friend here.

It wouldn't have to be that way. If he had understood this thing about people, it would probably have turned out this way.

Funny thing is: if the world doesn't fit our conceptions of it, we think there's something wrong with the world. Maybe if we took the world as given and ourselves as changeable, we'd do some things differently today than we did yesterday.

Highly speeded up movements as MC builds a Rube Goldberg hammock linked to sun's movements. As sun clicks movement across sky, rig moves him in jerky movements along with shade. Zoom in on his satisfied smile.

Film runs down and MC stands in front of screen with projection machine still going, but bulb only.

Maybe we wouldn't always be so sure that what we know was what we need to know.

I dunno. What do you think? You're people just like me.

(Replay Scene A to frustration scene and Scene N both speeded up, with theme music in background--"Broadway"--under credits if played here, or under

"The Beginning" pulled off by a rope or by hand replaced by "The End" pulled off and replaced by "The Beginning" until fade out.

Theme music

Main screen, MC beside vaudeville sign, which says

More?
Write CASC
Room 300, Communications Center
The University of Iowa
Iowa City, Iowa 52240

for 1 minute.

PS-26

FINAL REPORT: PILOT STUDY #3

Enrichment of Strategic Communication

Competencies: An Instructional Package

Project Coordinator: Tom Deats

Summary

The aim of this pilot study was to develop a prototype of an instructional package for classroom use which would improve not only student but teacher communication competencies in the area of information seeking and knowledge utilization. The instructional package developed for this study focused on fundamental theories and concepts of human communication processes and inquiring behavior. An important segment of the package included a simulation exercise wherein students played the roles of "teachers," "students," and "knowledge brokers." A student workbook, a teachers' manual, an audio tape, and visual demonstrations were developed and tested (see attached).

The instructional package, entitled Inquiry, was tested in the classroom for two weeks in an Iowa community school. Three seventh-grade language arts teachers tested the package in three different classes. Although the package can by and large be rated a "success" in terms of the ways in which it enhanced and enabled teachers to inform students about various human communi-

cation processes and forms of knowledge and information utilization, the simulation portion of the package remained untested as the teachers said they did not understand it. One major purpose of the simulation was to enhance teachers' information regarding the existence and use of U.S. Office of Education-sponsored data systems. Further testing of this package with the simulation exercise should prove useful in developing student and teacher communication competencies.

Rationale and Description of Study

The study was planned primarily to develop approaches to enriching teacher communication competencies at the strategic level with a goal of enabling teachers in becoming improved inquiring systems. The rationale for this study was based upon the assumption that for the most part the so-called communication problems in education related to information and knowledge utilization are strategic rather than tactical in nature. (Cf. Research Memorandum #5.) Past efforts to improve teacher communication competencies have for the most part focused only upon the tactical-skill-level and have failed to "get at" the strategic level.¹ But a tactical communication competency is almost never adequate to negate a strategic incompetency, although strategic competencies may be developed which will enable persons to overcome existing tactical incompetency.

The development of this particular instructional package grew out of a dissatisfaction with existing "communication" instructional packages which for the most part do not deal with strategic competencies but focus on improvement of tactical skills (e.g., writing, speaking, sequence of presentation of materials, etc.) In addition, it was thought that a useful instructional package was possible which would simultaneously "instruct" teachers and students. For example, in this package while the students are learning about various aspects of the human communication process, teachers, in order to "teach" the package must not only learn about communication processes but existing sources of educational information. (Of the three teachers who tested this package only one had previously heard of the ERIC system, but by the end of the test period all three were "aware" of the ERIC system, even though they did not actually "teach" the simulation portion of the package wherein all of the material on ERIC was presented. Thus just by acquainting themselves with the material in the Inquiry instructional package the teachers at least became aware of the existence of the ERIC system.)

If the classroom teacher is conceived of as a primary influence in the development and growth of the cognitive abilities (and disabilities) of children in school, then the kinds of information seeking habits and competencies which are used and espoused by teachers will more than likely be reflected in the habits and competencies of the children they teach. The material in this

package was developed and presented to teachers in terms of an "open systems" orientation. That is, most of the material was developed so that it could be presented by the teacher to facilitate classroom discussion and to permit the individual teacher to decide what, how, and when various material should be covered or excluded. (See Section One of the attached Teaching Manual.)

The material for the instructional package was developed for the junior high school level and was tested in an Iowa community school (Farley, Iowa) by three language arts teachers who daily taught three sections of language arts. Each teacher used the instructional package in one of their three sections. Approximately 75 students utilized the material in the instructional package. The packages were used for two weeks near the end of the spring semester. Each teacher developed her own lesson plans to fit her particular interests, capabilities, and her students. There were suggestions for class activities in the teaching manual.

Prior to the introduction of the new material into the classroom, the teachers were briefed on the general conceptual theories and assumptions behind the work and use of the package was discussed in some detail. During this orientation session the teachers were enthusiastic about the package and the uses to which it could be put in their classes.

An extended "rap" session following the two weeks of testing was held with the teachers to "debrief" them and to obtain their opinions and reactions to the instructional package and to obtain suggestions for possible improvements.

Generally the teachers thought the instructional package was useful and could, if utilized over a longer period of time provide important and needed information regarding human communication. There was a consensus that much of the material might be more suited to freshman level in high school.

The open-ended nature of the package confused the teachers to some degree in that they admitted they were not used to having to develop their own standards of learning achievement. As one of the participating teachers put it, "I had trouble trying to figure out what they were learning I didn't know what I was aiming for." Another teacher said, "I have the impression that what you were probably trying to do in here was to encourage creative thinking and original thinking. And I think that's good. But at the same time I think the teacher has to aim for something --you know--even if it is just to have them [students] present their thoughts on something--without dictating--keeping it sort of free, but at the same time knowing what you are aiming for in that lesson or that 45 minute period."

The teachers admitted that perhaps they depend too much upon lesson plans and curriculum guides developed by others and suggested that they would be interested in aiding in the development of instructional packages. As one teacher said, "I think maybe we're too used to [using prepared lesson plans] . . . which isn't necessarily, maybe, the best thing either. But I think that if [the instructional package] had more suggestions in it, it would have helped."

Another agreed, adding, "Yes. Activities, I found, where they [the students] rather than just talking about something, where they actually saw or did something, this is where you seem to get people really involved and maybe getting some insight from it. The more they participate the better." The interesting point here is that the teachers apparently failed to see themselves as participants in the learning situation and in the development of the material which was presented in the classroom. Several times they expressed pleasure with the instructional package and said the material on information seeking, questioning, creative thinking, etc., was valuable for the students, but never did the participating teachers explicitly say they thought such activities were good or necessary for teachers.

In reference to the use of basal textbooks in the teaching of reading, one teacher noted, "Not that an excellent teacher doesn't use it [basal reader text], but I think you really have to be a super, super, good teacher to be able to take that basal and put it away and know exactly what skills are taught in each grade in reading, for instance, and then go your own way I think good teachers use it, I'm not saying they don't, you know, but I think you have to add to it. I don't think that is just enough." The teachers do engage in "creative" work in developing their curriculums, but by and large do not recognize that they are doing so.

For example, in discussing the simulation exercise wherein students were to play the roles of teachers seeking information, the teachers had difficulty in recognizing that the process the students (as "teachers") would be engaged in would be similar to the process by which teachers attempt to determine what they think students "need" to know. The following exchange took place in the debriefing session:

Teacher: "How are the teachers going to determine the needs?"

Investigator: "How do you do that?"

Teacher: "That's my question. You know . . . I looked at this and thought"

Investigator: "You mean you as the teacher or the kids who are playing the role of the teacher?"

Teacher: "The kids who are playing the role of the teacher."

Investigator: "Okay. How do you do it as a teacher?"

Teacher: "I test."

Investigator: "To find out what you think the students need to know?"

Teacher: "Yes. Work with them for awhile like you do at the beginning of the school year."

Investigator: "Probably what you would have to do then is . . . they would probably ask you that question."

Teacher: "Yes."

Investigator: "That's probably the only way you could answer it--the way you do it."

Teacher: "Yes."

All of the teachers agreed that as they used the package, the students, who at first did not easily participate in question-asking sessions and discussion periods, began to increase the number of questions they asked and in several cases began to help and work with each other as teams as they shared their points of view with each other. The teachers were struck by the unexpected difficulty they had in the first sessions of getting all students to participate in discussions and question asking. Two of the three teachers indicated they planned to use some of the "new" inquiring approaches in their classes in the future. All of the teachers implied, however, that they were concerned that when students "just discussed" or "merely thought about" questions they might not really be learning what the teachers (i.e., curriculum) expected them to learn.

As one teacher put it, "The class I used it [the instructional package] in thought it was pretty good. But I had trouble trying to figure out what they were learning. It was fun in class but I couldn't really understand myself what I was trying to teach them, so I don't know if they learned anything."

Another said that she thought that if similar approaches had been used "all the way up from first grade, it would be easier to fit it. But it seems like so many of the kids . . . maybe we don't give them enough time to just discuss or just to bring out these things. And some of them you know--they--they didn't know what to say. It was so different from regular

classroom instruction. We do have groups but then all of a sudden you were opening it up. Like, don't be afraid to talk. And you were trying to get it out of them. And it was hard for them."

Conclusions

This approach appears to be a viable method for beginning attempts at reaching strategic communication competencies in teachers and students. The simulation exercise in this particular package would have to be outlined to potential "users" in more detail in terms of what the users could and would need to bring to the exercise situations than was done during the field testing.

Despite some drawbacks in the material and in the field testing, the package can be called at least a partial success in that it introduced several "new" approaches into classroom routines and the participating teachers and students said they favored such approaches. Further testing of this package would be desirable with an expansion of the material and the simulation exercise.

Notes and References

¹See, for example, those instructional packages developed by the Northwest Regional Educational Laboratory: Improving Teacher Competencies Program, Improving Motor-Perceptual Skills, Coordinated Helps in Language Development (CHILD), etc.

FINAL REPORT: PILOT STUDY #4

Development of Educational "News"

Audio Tape Cassettes

Project Coordinator: Stephen Martin

Summary

This project was designed to test the abbreviated hypothesis that: educators need and will use knowledge which has "news" value to the degree that knowledge helps them maintain their individual roles as knowledge disseminators and corroborators. Educators need knowledge to talk about to others and need knowledge of what others are talking about. Knowledge which has this utility will be "consumed" and/or disseminated. While the hypothesis could not be said to be positively confirmed, pilot tests with teachers, principals, and administrators indicate that the "news" concept employed in this project, as well as the means of packaging and the general rationale, have potential. We found some evidence that educators would like such a service, and that educators use what they like.

Rationale and Description of Study

This portion is divided logically into two major sections. The first deals with the philosophy and assumptions which formed a conceptual base in the development of audio and video "news" cassettes.

The second section is a review of the actual development of the prototype cassettes.

I. Assumptions

Any attempt to deal substantively with issues involving knowledge dissemination and knowledge utilization is rather precarious to say the least. Few other terms in popular use require so much unpacking or are so "hallucinated" with assumptions which simply do not fit the empirical world.

In the first place, a prevalent notion has it that knowledge disseminated is knowledge used. Or, to say it another way, many would have us believe that--if knowledge is made available--it will be used. The facts indicate that it may well be used, or misused, or disused, or abused, or ignored. The assumption simply does not hold that there is any necessary relationship between the distribution of knowledge and the ways in which it is used.* What is obvious, however, is the fact that knowledge which is used will be disseminated. The point is worth being repeated: knowledge "used" is knowledge disseminated.

In the second place, another prevalent notion has it that "knowledge needs" determine knowledge usage. The assumption is that individuals "need" knowledge. Therefore, knowledge which

*Indeed, it seems that the most prevalent "use" of knowledge in our society is ignorance.

appears necessary will be used. At the individual level, there is validity in this idea. That we each possess (and satisfy) knowledge needs is obvious. That we are generally knowledgeable about the specifics of these needs is questionable. That we are consistently capable of determining the knowledge needs of others, particularly those outside our epistemic community, is absurd--not patently absurd, but absurd just the same. What does seem to hold is the proposition that: knowledge "used" is knowledge needed.

In the third place, it is commonly suggested that the utility of knowledge is somehow directly related to its "problem-solving potential," i.e., the test of a "good" bit of knowledge--it is often implied--is found in the corresponding bit of problem which it eliminates. Clearly, this isn't so, at least not necessarily. The argument against this assumption can be resolved on commonsensical, empirical grounds. In this age of "exploding knowledge," one would be hard pressed to cite evidence of any diminution in problems.

Although we may choose to believe otherwise, knowledge rarely simplifies life processes by aiding in the solving of problems. Quite the contrary, the use of knowledge tends to complicate life and, hence, acts as a stimulant in the creation of problems. Most teachers learn very quickly that most problem-solving knowledge creates a sea of problems.

The Knowledge Process: Fallacies

Before briefly discussing the propositions stated above (underlined), one "supra-proposition" and three "fallacies of knowledge," which have (or should have) particular import to "knowledge disseminators," are deducible from the foregoing comments. To wit: knowledge needed is knowledge used is knowledge disseminated. The negative corollary is perhaps even more illuminating: knowledge not needed is knowledge not used is knowledge not disseminated. What does not hold and, therefore, is still more illuminating is the mistaken notion that the process starts with dissemination and ends with need.

Three fallacies frequently obtained when the knowledge process is not viewed as reflected in the "principle" above:

(1) The fallacy of dissemination. The assumption is that--if certain knowledge is "made available" (i.e., disseminated)--it will be used and used in prescribed ways. (2) The fallacy of use. The assumption, in two parts, is that--if certain knowledge appears "usable" (i.e., on the surface, it seems to have problem-solving potential)--it will be used and used in prescribed ways or, if certain individuals can be induced to use (not need) knowledge of a specific nature, they will continue and others will do likewise. (3) The fallacy of need. The assumption here seems to be that--if certain knowledge is deemed necessary (or needed) by certain individuals (or institutions)--it will be deemed

necessary by other individuals (e.g., teachers) or, if it isn't, it ought to be and, therefore, somehow mysteriously will be.

While there is scattered "evidence" which appears to run counter to what is suggested here, it seems perfectly evident that everyday living "proves" these fallacies time and time again. People "need" the knowledge they "use" and "use" the knowledge they "need." If they do not need certain knowledge, it will not be "disseminate-able." If they do, it will be disseminated by use, rather than by "dissemination" or by disseminators in any formal sense.

The Knowledge Process: Propositions

To repeat, the proposition central to any cogent view of the knowledge process might be stated epigrammatically as follows: knowledge needed is knowledge used is knowledge disseminated. This very telling maxim is deducible from a simple, albeit sensitive, examination of the three propositions discussed below--and, in turn, these three propositions are deducible from a simple, albeit sensitive, examination of the empirical [read: "real"] world in which we all live.

1. Knowledge "used" is knowledge disseminated. The problems of "getting knowledge used" is one peculiar to knowledge disseminators. Most knowledge that is "used" by most people in any epistemic community falls into an entirely different category. Or, to put the matter more squarely and more accurately, the

problems faced by knowledge disseminators result from attempting to disseminate knowledge which is not presently being used by those to whom it would be disseminated.

Obviously so, one might say--elsewise knowledge disseminators would be unnecessary. That is, one might go on to say, if the problem didn't exist in "getting knowledge used," questions of knowledge dissemination (and utilization) would be obviated. However, the point is that knowledge dissemination is a problem only for knowledge disseminators, not for "real" people using "real" knowledge. The facts indicate quite clearly that knowledge which people consider useful is used by them and that knowledge which is useful in getting large numbers of individuals "through the day" is disseminated quite effectively without the aid of knowledge disseminators, per se. Hence, there is no reason to suspect that knowledge which is not being used by individuals (e.g., teachers) will necessarily be used by these same individuals if the knowledge is merely distributed to them.

2. Knowledge "used" is knowledge needed. This follows very closely from the first proposition. At the individual level, it is questionable whether a person needs any knowledge which he (or she) is not presently using. On the other hand, if an individual recognizes a "need" for certain knowledge, that need alone represents a "use" of the knowledge, regardless of whether the specific knowledge is involved or not. In fact, it is often the case that the "best" (i.e., most productive and stimulating) use of knowledge

obtains when a knowledge need is recognized by an individual, but is not fulfilled or satisfied or solved.

Once a specific knowledge need is recognized within a person, one of two "useful" events will take place. Either the individual will seek out knowledge which will have utility (i.e., "be usable") in satisfying the need or the individual will discover (or recognize) utility in not obtaining the specific "needed" knowledge.

For example, talking about problems is apparently oftentimes more useful to people than is solving problems. The mistake, then, is in assuming that since people talk about problems (i.e., problems in the classroom) they necessarily expect, desire, or "need" knowledge which would "solve" their "problems." Or, to put the matter more squarely and more accurately, the problems faced by knowledge disseminators result from attempting to disseminate knowledge which is not presently being used and is not presently "needed" by those to whom it would be disseminated.

3. Use of knowledge tends to complicate life and, hence, acts as a stimulant in the creation of problems. It may well be true that knowledge disseminators need to concentrate more on packaging problems, rather than solutions. This is not to suggest that people "need" additional specific problems. Most of us don't-- or, at least, we tend not to think of our "needs" in these terms. But, on the other hand, neither do we always, or even often, "need" additional specific distributed solutions. What most of us do need is knowledge which we are able to use in maintaining our individual roles as knowledge disseminators.

We need knowledge to talk about to others and we need knowledge of what others are talking about. This universal "need" seems to afford the most vulnerable spot of attack by knowledge disseminators. It isn't directly a matter of dissemination nor use, nor need (as is generally conceived) and efforts in these directions will merely create enough problems to keep knowledge disseminators in business ad infinitum. It isn't directly a matter of creating problems for others or offering them solutions. It is a matter of recognizing and understanding the knowledge process at the individual level and the role which human communications plays in that process.

II. Development

The major hypothesis of this study was that educators need and will use knowledge which has "news" value to the degree that they can organize themselves around that knowledge and, secondarily, which helps them maintain their individual roles as knowledge disseminators.

That is, educators "need" knowledge to talk about to others and "need" some knowledge of what others are talking about. Knowledge which helps satisfy this need will be "used" and disseminated. What is meant here by the term use has to do with an individual using information about something in his social relationships--which is the earliest and still the most basic function of human knowledge--and not so much the direct application

of "knowledge" to a problem situation, per se. The "use" of knowledge in the first sense precedes the second use. All knowledge which is taken-into-account must necessarily exert an ordering or disordering effect within the individual, which is typically to be accommodated through corroboration or disconfirmation by others in one's own epistemic communities.

Assuming that disorder encourages change and that change is "the name of the game" for those concerned with knowledge dissemination, then the project outlined here appears to have considerable potential. It should be emphasized, though, that the direction of change is difficult to predict and, hence, if the "real" objective is control, then intellectual-communicational disordering is not the prescription.

In essence, we hypothesized: 1) that educators would be attracted to educational knowledge if it could be presented effectively as "news," given all of the first-person and dramatic impact of radio, TV, and newspaper "news"; and 2) that, to the extent one or more educators in a given school were attracted to these news programs, the other teachers and administrators would have thereby a "need" to know what the one or two of their colleagues now "knew."

Based upon the preceding rationale, seven series of educational "news" audio tape cassette programs were developed to test these hypotheses. The series were intended as continuing categories with additional programs to be developed in each series on some

interval basis. For this project, eleven prototype programs were developed and experimented with. Each program is approximately 5-8 minutes in length. Each program is patterned on the educational "news" concept of packaging knowledge which educators might find helpful in talking to others and in knowing what others are talking about. In this way, knowledge is "disseminated" by much the same formula and with comparable results as is political, sports, and financial "news." The main utility of news--at any level and of any kind--has to do with the fact that news gives people something to talk about.

Audio "News" Series

1. News On Books Educators Are Talking About

Program 1) Illich-Silberman

2. News On Special Topics Of Interest To Educators

Program 1) Communication in the Classroom

2) Public's Attitude Toward the Public Schools

(Parts A & B)

3) Alternative Educational Programs

3. News Educators Are Talking About

Program 1) Roundup of News

4. News From Educational Research

Program 1) PRED Report #25--Improving Teaching
Effectiveness

5. What's New In Iowa Schools

Program 1) University of Iowa Courses

2) Sabin Elementary School

6. Conversations With Educational Thinkers

Program 1) John Bremer

7. Educators In The News

Program 1) John Holt

These "news" cassette programs, which are appended to this report, were not produced without difficulty. We first examined and analyzed all of the audio cassette programs we could locate--those for business executives, physicians, psychiatrists, salesmen, literary buffs, historians, and even teachers. Based upon their market, we attempted to assess those elements which might contribute most directly to their "success."

Beyond the convenience of the cassette itself, and the advantage of its privacy, we considered such factors as time, voice, first-person effects, absence of pendency, repetition, and so on. We considered the privacy of the audio cassette to be a key factor since people learn and accommodate new information "better" in private than in public. We also discovered that the saturation of audio cassette players was such as to ensure the technical efficacy of the medium if we could achieve the right combination of other factors.

During the year, we experimented with many different combinations of factors. We produced several prototypes before

achieving the combination which we finally experimented with--
exemplified in those programs listed above.

Because it was after the regular school year by the time we had produced prototypes we felt might be effective, we "tested" them on an invited group of teachers, principals, and administrators from the Iowa City and nearby school systems, and with other available audiences less formally. On the basis of these cooperative "tests" of our prototypes, we feel we have learned what combination of factors--including subject--would most likely be effective. This could best be developed in conjunction with a hearing of each program.

As to distribution: it was our conclusion that four distribution schemes might be feasible, and worth testing:

- 1) direct personal subscription;
- 2) free distribution through existing resource agencies such as Iowa's Regional Centers;
- 3) through school libraries, much as magazines are distributed, except the cassettes could easily be "recycled" and thus reduce costs; and/or
- 4) some combination of these.

Further exploration should be made of these and other distribution schemes, for distribution is and will remain--as with all subscription services--a crucial factor.

We also concluded that a desirable next step would be that of devising a national purview for the subject matter for this

medium, and an organization scheme for the collection, editing, and "packaging" of educational "news" suitable to this particular-- and highly demanding--medium. An audio news cassette is not a mere substitute or complement to the print media (although it could be adapted to the second function), and, to be effective, would need to be developed and facilitated in terms of its own potentials and limitations.

Video "News" Cassettes

As a result of experimentation in producing similar news programs on video tape, two tentative conclusions seem unavoidable:

1) Given future expansion in the availability of video playback units and given the inherent possibilities of a medium which combines visual and auditory "channels" and given the enormous quantity of experiences Americans have with commercial television, video educational "news" cassettes afford potentially even greater potential as a means of knowledge "dissemination."

2) Video programs should be conceived and developed separately from audio "news" programs. That is, one should not be patterned directly after the other--except in terms of the general rationale--and one medium should not be considered to obviate the use of the other.

Lastly, it should be understood that formalized, institutionalized knowledge disseminators represent the true knowledge users and that educators can more usefully be viewed as knowledge

disseminators. The question OE should be most concerned with, therefore, is how can knowledge be used by OE in such a way that educators will disseminate that knowledge.

As of this preliminary report, one viable and fairly effective video tape news cassette has been produced, based upon our experience with earlier prototypes and with the audio news cassettes. It is appended to this report.

FINAL REPORT: PILOT STUDY #5
New Approach to Development of a
Magazine for Educators

Project Coordinator: Lee Thayer

This Pilot Study, more fully described in our Interim Report (December, 1971), herewith reproduced as Appendix A to this report, was, as explained in an earlier Progress Report #3 (30 April 1972) not carried through.

It involved the development of some alternative patterns for the content and presentation of educational research and innovation "knowledge" either in existing magazines or in an experimental prototype. Although it was not possible for us to undertake any empirical tests of these possible alternatives, our continued surveillance of the research literature on the communication patterns of practicing educators has lent additional support to our original hypotheses. As a result, we feel that there would be new and/or otherwise unexploited opportunities in such an endeavor, and suggest that NCEC may wish to undertake some efforts in this direction in the future.

APPENDIX A

Pilot Study #5

New Approach to Development of a Magazine for Educators*

As discussed in previous documents in this project, we do not believe that the key problems in "knowledge" utilization in education are tactical communication problems, calling for more data, different forms of data, the direct translation of data from a print to a nonprint medium, etc. Rather, we believe that the key problems--the long-range problems--are strategic communication problems.

One very general hypothesis which develops from our alternative conceptual perspective on the process is that educators' competencies as inquiring systems will be enhanced not so much by providing "solutions" to general "problems" (as decided by the "knowledge" producers or the information-system designers), but by increasing the alternative ways educators have of identifying and naming the problems they want to deal with. At its core, this is a very simple matter. Eskimos have some 17 different ways of naming "snow." This gives them finer discriminations, and several

*Source: Interim Report dated December, 1971, pp. 47-48.

alternative ways of orienting themselves to what we call "snow." These alternatives, in effect, make them better "inquiring systems" as far as snowfall is concerned. The same relationship, we have reason to believe, holds for any human perception of what is going on: the more the perceiver's alternatives, the better he is as an inquiring system, and the more sensitive and responsive, therefore, must be his "sources" of information.

Our preliminary study suggests that there are several major differences of this sort between most academic education journals and, for example, engineering and trade journals. (The latter also often personalize information where academic journals in education often tend to "disembody" or to depersonalize information ["knowledge"].)

It seems to us that "problems" are one of the educator's "stocks-in-trade," and that, therefore, there is a need for a magazine (or at least a magazine department) which would add to a teacher's problem-naming repertoire--and thus to his "stock-in-trade." The development of a prototype magazine (or of prototype departments within an existing magazine) would permit us to demonstrate two things:

1. That educators would "use" a magazine (or departments) which would increase their repertoires of problem-naming, in much the same way that interpersonal conversations serve this purpose; and
2. That their "use" of such a medium would both enhance their competence as inquiring systems and permit the indirect "transfer" of new research and practice ideas, new "knowledge," etc.

We plan to develop and test prototypes with these two exploratory hypotheses in mind. It is not clear at this moment how best to assess the results, but assessments seem feasible, and assessment techniques will be developed according to the schedule below.

The results will demonstrate the feasibility of further research and development of a medium that would seek the two ends described above.

FINAL REPORT: PILOT STUDY #6

Film Loops and Knowledge Utilization

Project Coordinator: Ed McLuskie

Summary of the Problem

The hypothesis for Pilot Study #6 was designed to speak to the need for efficiency in the public schools as well as to "knowledge utilization" in general; this need is implicit in notions of standardization and order which in part characterize public schools. A model of operative efficiency regarding knowledge utilization would necessarily be found, it was contended in the proposal, in a closed system. The training department of TWA offered such a model. It was learned that, in this specific closed system, two basic "information environments" existed--the formal and the informal. The former consisted of explicit training sessions of various sorts (classroom exercises and instruction and training exercises on an individual basis); the latter capitalized on the trainees' "free time" or "coffee break" environment, through quiz games (drawing on material from instruction sessions) and through film loops containing "new" information (less related than the quizzes to the formal environment). The film loop technique was also employed in the actual work day of the pilot by TWA in pilot waiting rooms. Having proved successful for TWA's closed system, this study asked whether the informal environment of the public schools could also prove

profitable for teachers. Asking this question demanded scrutiny of the nature of the closedness or openness of the school's environment.

As noted in the Interim Report, a closed system is characterized by efficiency. The ideally closed system is a system which does not allow any deviation from performance of tasks to a specified end. That end (or those ends) is clearly defined, as are the means. In the context of those predefined ends and means, the closed system is an authoritarian system in that deviation from those ends and means through, for example, toleration of "creativity," is not allowed. An efficient system is an ordered and orderly system.

The ideally open system, on the other hand, is characterized by inefficiency--freedom to the point of chaos. Here we find no order, where individuals are freely "creating" to no predefined common end or ends. Tasks are not clearly defined. Where the results of tasks performed in the closed system are identifiable, they are not in the open system, if we understand "system" to denote connections of some kind--duties, means, ends, the individuals involved. In a sense, then, the phrase "open system" is a contradiction in terms, for the ideally open system is no system at all.

It was contended in the proposal that, "while notions of creativity and freedom are not part of the airline enterprise (in terms of how to perform the required task), they are considered important in the education enterprise" (Interim Report, p. 50).

Such notions would cause a system to be less closed than it would be in their absence; this study was thus based in part on the assumption that "the education enterprise . . . is a relatively open one . . ." (Interim Report, p. 51).

The larger question thus became, "Could a closed system posture be transferred to an open system?" and was reflected in the hypothesis: The posture embodied in a relatively closed system can be successfully transplanted only to certain closed aspects (in this case those completeable and determinate tasks) of a relatively open system.

Rationale

The scope of this study was limited to the "new information" aspect of the informal environment, where at TWA the film loop concept was employed. Strictly borrowing from TWA, a Fairchild film loop machine was placed in the faculty lounge, counter-part of the TWA training center coffee lounge, at West High School, Iowa City, Iowa, for four days. West High School was chosen because every faculty member is allowed one free hour during the work day. Furthermore, the faculty lounge was chosen because it was the only place in the school building to which faculty members could go during that free time, since all classrooms were utilized each hour. No other school was chosen due to time limitations; i.e., the test was ready to put into operation only during the last full week of school.

Two films were used for the testing period. The first drew its material from a piece of research in the ERIC System, "Do Teachers Make a Difference?" by Alexander Mood. This piece was chosen for its potential appeal to all teachers, rather than other pieces of research which speak only to history teachers, science teachers, etc. The film did not merely transpose the information from the printed research piece to the film medium; rather, the problems posed in the research piece were posed in the film, reflected by three basic questions: (1) Do teachers make a difference? (2) In what ways, psychologically and in terms of skills? And (3) How can we know? The filmmaker was told only to pose these questions and, at the film's end, to direct viewers to postcards which would allow them to receive a full discussion of these questions in the printed piece. The questions were posed through the use of simulated classroom situations which involved students of junior high and high school age along with adult actors portraying teachers. Visually both task situations (taking standardized tests, for example) and emotional-psychological situations (a teacher showing his anger toward a student and the student's response, for example) were displayed; a narrator verbally raised the three questions in different ways throughout the film. The sound track included music. The attempt here was to make the film as entertaining as possible while still aiming for teacher responses via the postcards. Since the environment wherein the film was being shown was informal, a formal film was not thought appropriate.

The second film had as its subject matter the various resource centers available to teachers for their use. Visually, different kinds of equipment were shown, with musical background. It ended with the narrator saying only that media resource centers have materials available to teachers. Again, the subject matter was chosen because it would not appeal only to one specific group of teachers. Furthermore, the film was not loaded with the information--postcard response would provide that. To have loaded this film with that information would have been to formalize the film. It is important to emphasize that the medium for this study was not the technic (neither the Fairchild projector nor the film loop), nor was it the faculty lounge. Rather, the medium was the state of mind. Referring again to the TWA model, "free time" of the trainee was capitalized on; free time of the teacher was capitalized on here. The assumption is that the teacher brings with him to the faculty lounge a state of mind notably different from the classroom, faculty meetings, and in-service training programs. The key distinction of the state of mind in the faculty lounge is its quality of informality.

Of consideration in this pilot study was essentially whether or not the technic would be used during this state of mind, i.e., in this medium. Therefore, only to this extent was the hypothesis addressed. If the technic were not used, the question of capitalizing on this state of mind in a public school would have become moot. So far as this pilot project was concerned, the task was to determine whether the question was indeed moot.

Procedure

The film loop machine was placed in the faculty lounge, and could be turned on by pressing the "on" switch; when each film ended, the machine automatically shut off. As stated in the proposal, "The point of this study is not to change the education system, but to reflect certain aspects of it" (Interim Report, p. 52). Therefore, no effort to encourage teachers to use the machine was extended; the machine was left to the curiosity of the teachers themselves.

Three measures of use were employed: (1) An electric counting device, wired to the on-off switch of the Fairchild projector, indicated how many times, if any, the machine was turned on. (2) Film content in a "soft sell" manner referred viewers to postcards provided at hand, which the teacher could fill out and send to us requesting further information about film content; the number of cards received constituted a second measure, but only one suggesting extent of use by the teacher--i.e., was he sufficiently interested in more information? (3) Informal conversations throughout the testing period took place. This "measure" is viewed as the most important, for it addressed the communication problem: Would the technic during this state of mind become a part of the faculty lounge culture--a part of the state-of-mind medium itself?

Deleted from the proposal were testing and the strict building-block approach (Interim Report, pp. 52, 53). These aspects of the TWA posture were seen as irrelevant at this stage. Again, we were

interested in use as a precondition to tests of retention, comprehension, and application; testing and particularly the building-block approach are designs with use assumed. We could not afford to make that assumption for this study (Research Memorandum #5, and Interim Report, p. 7).

The closed aspect of this study was that completeable and determinate task of merely filling out and sending in the postcard provided, the only thing teachers were asked to do at the end of the film. This constituted in a minor way the closed posture transplant from TWA.

Measurement Results

Measure #1, digital counter: The reading at the end of the first teaching day was "18," "15" for the second day, for a total of thirty-three times the machine had been turned on. The third day of the test and the first day of the second film showed a marked decrease, the reading at the end of this day being "3." For the last day the reading was "1," totaling four times the machine was turned on for the second film.

Measure #2, postcards: Well over a month, from the time the technic was placed in the faculty lounge (May 23, 1972) to the date of this writing (July 7, 1972), has been allowed to await any cards teachers might have sent in. No cards have been received to date.

Measure #3, informal conversations: The Fairchild projector and each film were observed to be talked about by teachers without

questions being asked of them. Generally, the technic was more a topic of discussion the first two days than the last two. The coordinator was asked several times why the machine and films were there. Discussion was more often about peripheral matters than the substantive film content; characteristic examples are the statement put to the coordinator, "That thing has great reception!" and the question by another teacher, "What channel is that on?" Conversations were of an indirect nature, on the order of observation. At the end of the last day, when the machine was removed, no teachers were in the lounge, but perhaps a statement by one was: the Fairchild projection screen had been turned to the wall.

Interpretation of Results

The readings on the digital counter indicate only that the machine was turned on. The number "33," for example, does not tell us whether thirty-three different teachers turned it on once or whether one teacher turned it on thirty-three times. That there was a steady decrease from day to day may indicate decreasing interest, but even that is not certain. What is certain is that the machine was used.

The lack of postcard response may or may not indicate that teachers were not interested in acquiring more information regarding the film content. This, the only portion of the study of a closed posture, would seem to disprove the hypothesis, suggesting that whether or not the teacher is an "inquiring system," tactical

maneuvers like putting what's in print on film or any other technic is not going to make him so or more so; this result also points beyond the scope of this study to the total relatively open system-- i.e., the teacher brings a state of mind different from the classroom, but he is not divorced from that classroom. If the hope was that teachers would ask via the card for information available, that hope was not only unfulfilled, but it also rests on the assumption that merely knowing how and where to get what kind of information necessarily means the information shall be sought; such is the usual "knowledge transfer" approach. That approach would seem to be denied by virtue of this measure. It can only be said that this particular closed system posture was not effective in a relatively open system.

The characteristic comments exemplified above show that the state of mind integrated the technic, that the technic was indeed used. The films and machine were taken into account in an active way by teachers. How they were taken into account is not important at this point. That they became "cultural" indicates that the informal environment and the state of mind therein are worthy of further exploration. While there is nothing in the results which indicates technics per se are answers (which, because such problems are not communication problems, are not our major concern), the results of the readings and from the informal conversations are evidence of technic use to some end by the teachers (which only they knew).

Conclusion

Because the film loops and machine became "cultural," "knowledge" of some sort was utilized. The more certain "sorts" of "knowledge" are specified to be utilized in a pre-determined manner, the less open a system becomes. This study was designed to reflect certain aspects of the education enterprise, not change it. If closed system postures are to successfully be employed in any way, the results suggest, external changes to the open system are required--making the educational system itself more closed would seem to follow, a prospect of immense undertaking.

However, there are differences of open and closed activity within any given system. The informal environment may be used in conjunction with a more closed formal environment, the teacher bringing with him to the faculty lounge certain aspects of the formal. If the informal environment were related to the formal in some way, the kinds of tactical problems accompanying "knowledge utilization" (like getting more teachers to use more of ERIC) may to some extent be solvable.

The films in this study were of an "indirect" selling approach. It may be that the assumption that films should correspond to the environment in which they are shown is in error. An extension of this study would be to see how a formal presentation--a virtually information-loaded film--fares in this state-of-mind medium. Another further extension would be, instead of the "soft sell" approach used here, the use of a "hard sell" film. The groundwork

from this pilot study has been laid; we know the films became "cultural" to some extent, which answers the communication problem for this study; the next step is to investigate to what extent this phenomenon occurs.

The film-loop may be contrasted with other technics, like television tape--a tactical problem which can now be investigated in view of what we now know of the communication problem.

FINAL REPORT: PILOT STUDY #7

Simulation and Knowledge Utilization in Education

Project Coordinators: Albert D. Talbott and Malcolm S. MacLean, Jr.

Research Team Members:¹ Michael L. Turney, Sharon F. Murphy,
Michael P. Kennedy, and Francis R. Lalor

Summary

In this section, we give the rationale for and describe a learning game which may become a prototype for games and simulations for more efficient knowledge utilization.

Few social scientists suspect yet what a powerful tool for exploratory research open system simulation may become. More educators are beginning to recognize what a powerful instructional tool it can be. It seems especially so when used in learning to cope with complex situations.

We were fortunate to have in our project team of six persons six teachers, four school administrators, six scholars, three photographers, several specialists in broadcasting and film, four fathers and one mother. We were helped too by insights gained from the superintendent and assistant superintendent of the Iowa City school system. Discussions with school teachers and principals in the summer of 1971 also contributed to our thinking for this project.

A learning game, as we see it, differs from other simulations in that it is shorter and simpler. Our object was to derive a game

from a theory broad enough to generate larger and more complex simulations with similar aims. Our long-term purposes are to achieve those kinds of interactions among researchers, funders, teachers, school administrators, instructional package enterprisers, etc., which can improve both formal and informal educational systems. The game we produced appears to be a useful step in that direction.

We designed the game by:

1. Considering the kinds of things we wanted to happen and especially not to happen.
2. Developing guidelines and rules on the basis of those considerations and our experience with other games.
3. Trial and
4. Error

We made it a relatively open game to permit participants room to achieve some of their own aims through use of strategies and tactics we could not anticipate.

In February, 1972, we ran a pilot of the game with our students and colleagues. This led to some fruitful criticism and revision.

We also ran the game twice in April. We played THE GAME (as we came to call it) with high school journalism teachers at their convention in Los Angeles. The following week, we played it in Atlanta with members of the International Communication Association. The latter run of THE GAME we could not complete for lack of enough participants, but it proved to be the richest

experience of all.

THE GAME itself called for three major roles:

- a. Enterprisers: that is, members of learning enterprises similar to Westinghouse Learning Corporation, who create learning packages and sell them to
- b. Teachers: school faculty members who buy instructional packages and teach
- c. Students: who attend schools and take a certification exam.

We intended THE GAME to be more metaphor than simile. That is, it was not supposed to represent closely any current arrangement of formal education.

Participants play THE GAME as follows:

1. Enterprisers study a book on computers and programming, especially a chapter detailing a "Paper" Computer.
2. They prepare an instructional package of a kind they believe will help teachers most in efficiently teaching students how the Paper Computer works and how to program for it.
3. They work out how best to sell their packages to schools in competition with other enterprisers.
4. They try to sell their packages to as many schools as possible.
5. Teachers decide which instructional package to buy for their school. They may decide on the basis of which package will help them most in teaching, which might

make the job easiest, which might attract the best students, etc.

6. Teachers may ask enterprisers to help them learn how to use their packages.
7. Teachers recruit students to attend their schools.
8. Students decide which school to attend. They select sometimes on the basis of which might help them most to score high in the exam, which looks interesting, which has the prettiest teachers and like reasons.
9. All participants take the certification exam.
10. All participants and directors of THE GAME discuss processes, strategies, tactics, decisions and outcomes.
11. Each participant learns his score and collects his award, if he has won one.

In our trial-runs of THE GAME, we looked especially for knowledge utilization or the lack of it. We took pictures and recorded sessions in audiotape and videotape.

Analysis of our observations suggests high potential for simulations in gaining the kind of interactions Havelock has called for.²

Given our experience with this and other simulations, we see the following applications:

- a. A series of games in which people who play vital roles in educational knowledge production and utilization work through various ways of relating to each other. These could help increase intercommunicational abilities

among such people. Such games might also help them and us to create long-term simulations to be introduced into formal training of teachers, administrators, researchers, etc.

- b. A series of linking games to be used in training field agents. The games would provide linkers opportunities to try alternative strategies and techniques in linking educational researchers and specialists with practitioners.
- c. A series of games conducted by field agents with school personnel, parents, pupils, etc., where participants try new alternatives, discover some of the benefits, bump into the problems, work through adaptations, select what works well, modify or eliminate what doesn't, etc. Since adoption of innovations in schools is often more complicated than that on farms, this application might have the greatest pay-off of all.
- d. A series of games in which N.I.E. personnel, media specialists, communication and learning theorists, parents, adolescents, etc. could work through alternative systems of less formal education. This follows from one of the major recommendations of the Iowa project.

We recommend all four of these applications.

In any case, we will continue to work with simulation as a research and instructional tool. We would be pleased to work on any of the above applications, should N.I.E. wish to sponsor us in doing so.

Rationale and Description of Study

We are interested in developing training simulations for knowledge producers and consumers in which they can experiment with, and experience with each other, the problems and difficulties inherent in overlaying data systems on communication systems. A simulation is a transactional experiential learning environment in which the learner is brought into dynamic contact with the phenomena he is to learn about so that he can develop understandings which are uniquely his own.

Most everyone is well aware that conventional (and undoubtedly some of the new) teacher education programs do not imbue teachers with either the attitude or aptitude for the conduct of inquiry. Teachers, generally speaking, are not "effective" inquiring systems. We believe simulation, of all educational technics, offers the greatest potential for developing the characteristics necessary for the conduct of inquiry.

At Wichita State University, Thayer developed a large scale simulation as part of the basic program in the College of Business Administration.³ At the University of Iowa School of Journalism, we have begun our fourth year in our use of a large scale simulation as a major teaching-learning vehicle in our undergraduate program.⁴ Participation in our simulation accounts for one-half the 24 credit hours we require for our basic journalism major. A major emphasis in Thayer's simulation and in ours is providing learning environments in which students can become better inquiring

systems. We are very much encouraged by our use, as Thayer was by his, of simulation to achieve such ends. As far as we know, these are the only two simulations of their kind.

Originally we were interested in both small- and large-scale simulations which could be used as significant parts of the basic program of a college or department of education. Such simulations, from our point of view, would enhance and encourage in students who are prospective teachers, those desirable attitudes and aptitudes necessary for the conduct of inquiry. Teachers here are primarily conceived of as "knowledge users." An ideal situation would be to design simulations which involve participants as both producers and users of "knowledge." A program such as this could involve graduate and undergraduate students and faculty.

Presently, the typical social environment of public education separates knowledge producers (researchers, consultants) from knowledge users (teachers). Each operates in different social or institutional complexes, and the structures of those complexes are quite different in a number of important respects, such as epistemologies, philosophies, reward structures, financial support, professional identification, etc. A knowledge producer (educational researcher) is not typically rewarded by the "users" who utilize the knowledge he produces, and conversely, a knowledge user (teacher) is not typically rewarded for utilizing the knowledge which is produced by researchers.

However, some very interesting learning experiences for both knowledge producers and users might arise in situations where the reward structures were interdependent. This would involve construc-

ting simulations in which the created social context would interdependently support and reward both producers and consumers of knowledge. Such an environment should permit the two groups to develop more complementary and functionally useful concepts of themselves with respect to their mutual relationship and their work.

As we worked with this project we broadened our conception of potential applications for gaming and simulation in knowledge utilization. For example, we now believe we can fruitfully conduct simulations involving decision makers in funding agencies, research groups, resource centers and schools. Simulations may also prove highly useful in training field agents in the diffusion of innovations.⁵ Further, they might make it possible for teachers and others in school systems to try out alternative innovations to develop more realistic bases on which to decide which to adopt and what kind of adaptations may be necessary to make things work well.

We know that often the information systems people build don't match the communication systems of potential information users. Information system builders usually need to learn about the communication systems their consumers use, just as the consumers need to know about the information systems available for their use.

If an information producer were aware of whether and how consumers were handling his product, would it affect the way he produced it -- indeed what he produced? And if this "handling" could be scrutinized in a simulated environment, might it suggest new relationships and desirable alternatives to "the way things really are"?

A basic NCEC concern is how to get decision-makers-in-education

(professional and certificated personnel) to see the need to make use of information systems built by governmental and educational agencies. It seems to us that, once a study is accepted into systems like ERIC, it is retained there indefinitely on the assumption that it might be useful to somebody sometime. The kind of interaction developed in simulation can help to insure that the information going into data banks like ERIC will be useful to practitioners. In a simulation, researchers can sharpen their skills in assessing information needs of teachers, principals, etc. On the other side of the coin, practitioners can become skillful in getting researchers to understand their needs.

Some corollary concerns, we feel, must be

- a) to develop communicating, inquiring systems in the information producers which can help them deal with consumer's communication systems and vice versa; and
- b) to explore institutional reward systems--e.g., which people are rewarded how much for doing what?

This latter concern seems most pressing, since present institutional systems tend to reward the information producer on the basis of the quantity of his published research, but not on the basis of whether he has related to and made a difference for the practitioner-consumer (i.e. principal, school board, superintendent, etc.).

The nature and form of research produced and the channels through which it is distributed ideally will facilitate the dissemination of appropriate materials and information to appropriate users. In order to do that, producers need to learn more about the communi-

cation systems of users. Consumers need to know what is and might become available if they approach producers in appropriate ways. And both need opportunities to experiment with "appropriate" approaches.

Pilot study #7, outlined here, has as its major focus the design of means for dealing with the producer-consumer relationships just discussed. The means: small and large-scale simulations which can be used to develop in educators at all levels strategies and techniques necessary for the conduct of inquiry. Such simulations might enhance and encourage desirable attitudes and aptitudes for the conduct of inquiry in both users and producers of information.

As we first conceived this study, we wanted to develop a manipulable model of knowledge utilization. We developed THE GAME, which will be described later, both as a demonstration and as an experimental model of the process under consideration. Our aim was to develop a game which we could take to people who are decision makers in education, and get them intrigued with simulation as a way of learning complex relationships in knowledge utilization.

With considerable care, we developed a model environment using a set of rules to define purposeful relationships. We established bases on which participants could take and develop roles in dynamic interaction. We designed a system open enough for participants to construct their roles in tune with their own purposes as well as with ours. Some of the roles encouraged participants to work through problems of designing information systems to be compatible with communication systems of other participants. By cycling

participants through the various roles, we could provide all with opportunities to create such information systems. Time limits prevented such cycling in the game we conducted for this project.

Our game took the form of a live, human, open-system simulation. We assumed that people will learn if:

- a) the learning environment is designed for discovery;
- b) the environment is complex and rich enough to permit a wide variety of anticipated and unanticipated learning;
- c) the learning environment includes personal "stakes" for each participant--he must live with the consequences of his decisions.

In the literature, there are many disputes about what "really" constitutes a "bona fide" simulation. By no means is there consensus. For purposes of this study, we offered a brief statement of what we wanted to mean by open-system simulation. We indicated that such a simulation is a transactional experiential learning environment in which the learner is brought into dynamic contact with significant phenomena about which he is to learn so that he can develop understandings and coping strategies which are uniquely his own. Grossly speaking, simulation is a form of learning by doing. Simulations are dynamic, operating systems in which learners try to develop their understanding and comprehension of social phenomena. In our kind of simulation, we put people in live situations with which they have to cope. Within the context of these situations, there are consequences of the actions participants have to take. Participants can try out strategies on other participants and get some idea of how others re-

late to these. Further, participants learn how well these strategies work. Our simulations can be characterized more as open-system simulations. In them, strategies cannot be specified in advance which unerringly lead to success.

A wide variety of learning and research devices are called simulations. Most differ significantly from the kind of simulation we are concerned with in this project. Law students hold mock trials. Political science students simulate the United Nations General Assembly, American political elections,⁶ relations between simulated nations.⁷ Economics students simulate economic systems.⁸ Business students participate in management games and simulate operation of the business firm.⁹ There are simulations which involve the use of computers; some involve only the computer, others include people interacting with the computer.¹⁰ Sociology students simulate society.¹¹ Student teachers use "classroom simulators."¹² Education students simulate school-community relations.¹³ Researchers build simulation models of the processes of innovation diffusion.¹⁴ Then, change agents learn about innovation diffusion.¹⁵ There are math, history, geography, science and word games for elementary school children.¹⁶ An endless variety of educational and research devices go under the name of simulation and games.

Nearly all of these simulations differ from the kind we are developing for this project along one very important dimension: openness. Compared with the kind of simulation we are advocating, most of these simulations are relatively closed. That is, strategies can be detailed in advance which, if used, will unfailingly lead to

success. Closed simulations are quite appropriate if the phenomena with which they deal can be reasonably viewed as operating as a closed system. Examples would include flight simulators, wind tunnels, hydraulic simulation laboratories, etc. Some closed system simulation approaches are applied to phenomena which cannot be reasonably viewed as operating as a closed system. This would include, in the education and knowledge utilization area, innovation diffusion, school-community relations, and classroom instruction as well as most of the other simulations mentioned above. The social conditions and relationships are displayed in the closed simulation as though they were necessary ones and as though they were fixed and true in some ultimate sense. Suppose the phenomena with which the simulation purports to deal cannot reasonably be characterized in that way. What is it then that participants learn in the simulation which will ultimately prove useful when they must deal with the complex phenomena directly? Very little, it would seem. If the phenomena the simulation is about can only be reasonably viewed in open system terms, then that simulation should be designed using open-system techniques.¹⁷

The open simulation is an example of metaphoric thought since it is not seen as a mirror of a "real life" situation. It is a complete environment in and of itself, but many of its experiences and attendant learnings can be related--and may prove useful--in a real life environment. As a metaphoric abstraction, it offers involvement in environments which, in "real life," might be too costly, too dangerous, too time consuming, or too limited in scope or facilities

to allow for the desired explorations.

As envisioned here, simulation functions in the role of developing metaphorical awareness in the framework of the learning environment. It functions also to build a new structure through which fresh insights can impact the institution and the people in the institution. Finally and perhaps most significantly it focuses attention on the relatedness of things, ideas and situations, rather than on the "right" ways of dealing with these things, ideas and situations. In a more open environment, you cannot specify beforehand the strategies which will surely lead to "success." Success can only be evaluated in terms of purpose. Participants in an open simulation can and usually do have somewhat different purposes. "Success," then, for one person may not be "success" for another. Various strategies may be used. Sometimes, highly similar strategies will lead quite different results. Other times, quite different strategies will lead to highly similar results.

The simulation as described here tries to get at producer-consumer relationships by involving participants in both producer and consumer roles. This encourages comparisons, raising questions like:

- How do individuals adapt an information system to their purposes?
- How do individuals stretch their purposes to fit the available information system?
- What reward systems might be built into the learning system so as to give persons "good reasons" for creating and improving learning tools and materials?

- What constitutes usable research?
- How can producers take into account communication systems and networks in designing or contributing to information systems?
- How does one get a system going?
- How does one modify a system?
- How develop long-range thinking and concerns?
- Etc.

THE GAME is a short-run version of the open-system which might be extended to a large-scale simulation. As an instructional game, it has specific rules which set an outer limit to the kinds of interactions which can take place.¹⁸ It has a number of specified roles to be assumed by the participants. In playing THE GAME, participants go through processes which are fun and instructional at the same time.

THE GAME Described

THE GAME is a small-scale teaching-learning system in a "game" format. It is designed to raise evaluative questions and issues concerning contemporary education systems. It involves pupils who attend schools to learn, teachers who teach in those schools, and education-oriented business enterprises which design and market instructional aids to help the schools.

The aim of most teaching-learning systems is to "educate" students so that those students become useful and socially acceptable

members of a larger society. One traditional test of a school's success is the graduates' performance on an approved testing device. Examples of this are the Certified Public Accountants' exams, state bar examinations, teacher certification tests, medical licensing exams, driver's license exams. While these tests are not necessarily related to what goes on in the educational system, or to later performance in the given field, they may have substantial impact on curricular design and on the way people generally think about the field. THE GAME includes such an externally-imposed certification exam, the contents of which are unknown to, and uncontrolled by the schools, the enterprises, or the students. Thus, in addition to satisfying their own teaching-learning criteria, the enterprises, schools, and students have to cope with the imposed criteria of outside evaluators who give significant rewards to those who "perform" satisfactorily.

The subject taught during THE GAME is operation of the Paper Computer. This is a simulated computer system which is manipulated using paper and pencil and which is designed to introduce learners to basic computing and programming concepts.¹⁹ It is not highly technical and demands only a minimal degree of mathematical aptitude; but mastery of it should give the learner basic ideas of what a computer is, how it works, and what computer programming involves. The Paper Computer has all the essential elements of any computing system including its own simple programming language and thus it gives a learner an opportunity to apply his learning by writing computer programs to solve simple problems.

Participants in THE GAME usually start on the same basis, ignorant of the specifics of the Paper Computer. Where they finish depends upon the choices they make during THE GAME, and the effort they invest in it. Thus, foci of THE GAME are the various strategies developed and implemented by participants. Are the various ways educational enterprises develop and present their educational packages related to success in learning the "same" subject matter? Is the teacher's selection and then implementation of the various teaching aids relevant? Do different teachers get different results from using the "same" instructional packages? How do these choices and differences interact and what effect do they have on students in various schools? These are only some of the issues and questions which THE GAME is designed to raise.

In THE GAME, there are always at least two competing educational enterprises, each of which consists of at least three persons who work together to prepare an instructional package to sell to the schools. These people have a very vital role in THE GAME and their participation demands the greatest commitment of time and effort. They must begin preparing their educational packages before they meet the other participants.

Next, at least three schools are formed. Each consists of a minimum of two teachers. These schools are visited by enterprise sales representatives. Then, teachers in each school must decide which instructional package to purchase. Once this is done, the teachers must be trained by enterprise members to use the package.

Students are brought into THE GAME and enroll in one of the

schools. Enrollment for a given school may be facilitated or impeded by wheeling and dealing, bargaining, etc. Such bargaining can include tuition, rates, scholarships, entrance exams, guarantees of success on the certification test, etc. Then, classes get underway. The form they take depends on what both teachers and students make of them.

After classes are finished, all participants take the certification exam.

This step is followed by one central to our purposes, the debriefing. This is an intensive discussion of what went on at various levels of interaction as seen by the participants--within each individual, between individuals and within and between groups. Participants try to get at why various decisions were made and the impact their decisions seemed to have on others. They check assumptions with each other: Was the impact they intended the one that occurred? Did people do certain things for reasons anticipated, or for quite different reasons? Participants check on the success of their various efforts. They compare and evaluate the strategies and tactics of enterprises, schools and students. Why did students in one school seem to do better than those in another? Where two schools used the "same" enterprise package, what accounted for differences in results? Why did one student do much better than another when both attended the same school? Why did the members of one enterprise decide to construct a relatively closed package while another chose to make a relatively open one? Etc.

A simulation like this can be extended several semesters or

several years. It can involve graduate and undergraduate students, researchers, administrators, etc., taking each of the various roles. In pupil roles, participants can explore alternative ways of learning and become socialized into the system. Playing the teacher and development roles they would again explore learning, but would posture themselves differently, acting as knowledge producers and, to a certain extent, controllers, agents, and systems developers, rather than simply knowledge consumers.

Observations on Playing THE GAME

We "played" THE GAME with Ph.D. students and faculty in the University of Iowa School of Journalism; with high school and college journalism teachers at the annual convention of the Southern California Journalism Education Association; and with communication scholars at the annual convention of the International Communication Association. We chose these three groups partly out of convenience. All were participants in institutional education. Teachers, administrators, students and researchers were all represented. Furthermore, we could depend on finding relatively little knowledge of the "subject," the Paper Computer, by most participants. Easy access was afforded by relatively direct ties with the organizations involved. Participants came from places far apart.

In the following paragraphs, we summarize our observations of each playing of THE GAME.

1. University of Iowa School of Journalism

Since we played this game at our home base, we had excellent cooperation from participants.

The two enterprises involved prepared distinctly different teaching-learning packages: one heavily oriented to visual aides and one-directional instruction; the other emphasizing the learner's freedom (or responsibility) to choose whether or not he wanted to learn the content at all.

The schools also took distinctly different approaches to their task of teaching the Paper Computer. One school used its packages pretty much as intended by the enterprise. The second went so far as to hire for its faculty a key member of the enterprise with the more programmed package. The third school took the approach that "you'll learn this stuff if you're really interested, so here are some manuals, and good luck!" The major portion of the "teaching" period was devoted in this school to discussion of why anyone would impose content matter on anyone else, and how one might creatively approach learning in a stressful or oppressive situation.

Participant reactions and strategies also varied widely. Some players were paying close attention to the instructional content, intent on learning the operation of the Paper Computer. They went along with the rules and procedures, picking the school (or enterprise) which was most likely to serve up teaching in the most useful form.

Other participants were less concerned with learning the con-

tent and more concerned with process (what was happening, and how, and why). The discussion following THE GAME focused on:

- Experiential learning as it helps one to see better connections and dependence between enterprisers, teachers and students in creating learning situations;

- How a simulation can be open and closed at various stages, as determined by participants in the simulation;

- How a participant in the role of a student sees a teacher also as being in the role of a student, in the sense that a teacher must learn what and how to teach using an enterprise's package or not;

- How student success or failure in the task presented to him is shared by both teachers and enterprisers as well as the individual student;

- How learning through THE GAME process can create greater awareness on the part of participants of what goes into a learning situation--i.e., interaction between participants at all levels and the way they draw on various methods, procedures, and techniques to achieve their instructional and learning purposes.

2. Southern California Journalism Education Association Convention

In Los Angeles, at the Southern California Journalism Education Association, some participants wanted very specific tools and tricks for immediate and almost identical replay in their classrooms the next week.²⁰ These participants were quite uncomfortable about playing with a Paper Computer all day since most had decided, almost

from the start, that it has "nothing to do with Journalism teaching," and "my kids don't need this to put out a paper." It appeared initially that they were either unable or unwilling to look at learning processes and at the communication system they were developing and operating within during the six hours THE GAME ran. Even so, none of those who started dropped out of THE GAME.

It was somewhat encouraging, especially in light of the assumptions underlying this Pilot Study, that some of the participants began to "catch on" to THE GAME'S purposes. Some of them, in the debriefing sessions which followed completion of THE GAME, indicated recognition that:

- a. tightly structured objective testing (such as was employed in THE GAME to get at content mastery of the Paper Computer) can have a negative impact upon the individual student's attitude toward and success in a given subject or discipline;
- b. the range of opportunities depends on how participants structure things within the rules and roles; and
- c. there is greater personal commitment in a learning situation which throws greater responsibility for consequences on the learner.

3. International Communication Association Convention

In Atlanta, our third attempt at playing THE GAME clearly brought out some participants' concerns with education processes and

their differing philosophies.²¹ It also demonstrated some difficulties which can be encountered in presenting game-simulations in a convention setting.

We encountered problems with persons who agreed to participate in THE GAME and later cancelled out. They did so after more fully realizing the time commitment required. Some dropped out to attend other sessions. When the convention started, we felt that we had managed to deal with these problems and had sufficient people to run the simulation.

The initial stages ran smoothly, better than at the other convention. The enterprises presented their wares to the schools, the schools made their selections of enterprises, and the teacher training sessions got under way. However, when it was time for the schools to begin recruiting pupils, we had too few participants. Many of the people who had committed to play simply failed to show up. Rather than cancel THE GAME at this point we discussed our problem with the people who had come, and they volunteered to try to recruit additional participants.

We rescheduled THE GAME for the following day, but again found we still had too few participants. We cancelled the rest of THE GAME. However, we had a long and fruitful discussion of THE GAME and of the theory and philosophy of gaming and simulation.

An obvious point for discussion was why we were unable to attract enough participants to run the full simulation. Among the explanations proposed: time at a convention is too short to devote a major proportion of it to any single activity; conventions are

meant to be social and no one wants to deal with anything as "serious" as a simulation; conventions are gatherings of scholars who don't want to deal with anything as "frivolous" as THE GAME; some competing activities had more drawing power; there wasn't enough publicity about THE GAME. Our discussion revealed we had had mailing problems of which we were not aware. This resulted in poor timing. It appeared that we should have developed our own mailings for each convention, rather than depending on the ordinary convention mailings. These problems need to be considered by others running simulations at conventions. A simulation such as this should not be merely tacked on as another alternative to the convention-goer, but it should be an integral part of the whole convention. Perhaps a better situation would be a workshop with an entrance fee. This might be run exclusively for THE GAME, or even as part of a convention.

Discussing what actually took place during THE GAME brought out several interesting insights into participants' thinking. Various "enterprisers" and "teachers" revealed why they had performed as they did and explored alternative strategies they might have followed. Two schools which purchased their instructional package from the same enterprise arrived at their decision for much different reasons. One used it because it demanded much less work than the other enterprise package; the other "bought" it because the enterprise salesman convinced the school teachers that they could use or not use the package, as they pleased. Teachers of this school wanted to create their own approach. The discussion continued

along these analytical, philosophical lines, focusing on the processes of THE GAME. It avoided the trap of arguing about the content of THE GAME, which had been a problem during the Los Angeles meeting.

The discussion spun off from the specifics of THE GAME to more general applications of gaming and simulation. We talked about the Iowa School of Journalism undergraduate simulation and possibilities for an extended simulation which might be used in a college of education. Several of the discussants suggested alternate approaches that might be used in a college of education. Others suggested smaller-scale simulations which might be more viable for presentation at a convention.

One other important point discussed: the problem of validation of simulation as a learning tool. Since learning in this kind of simulation is often individual and complex, it does not submit well to standard evaluation procedures. The discussion lasted nearly three and one-half hours.

Conclusions and Recommendations

We are very much encouraged by the results we obtained from playing the rather simple game we designed. Participants found THE GAME compelling. They took their "play" in THE GAME seriously. Even those who claimed they did not like playing THE GAME did not drop out. Further, nearly all participants tried to do well on the certification exam. Participants accepted the pretense of THE GAME. They could and did use it to create a rich environment with compli-

cated patterns of interaction. In this GAME, some participants developed strong commitments and feelings. In Los Angeles, some high school teachers expected to do better on the certification exam than they did. They thought they had learned their lessons well. These teachers developed some highly intense feelings about both the exam (how unfair the exam was and it did not "really" measure their learning) and THE GAME. This was despite the fact that what happened during THE GAME was not going to have any direct consequences for any other sector of their lives. What people did, the way they related to and interacted with each other, and the perceived consequences of their own and others actions were important to participants.

There is considerable educational potential inherent in open simulations with the type of environment just described. They are ideal laboratory settings for people to explore, develop, implement, and try out communication strategies on other people, like those involved in knowledge utilization. Putting important educational ideas into practice is rarely accomplished by just "telling" somebody about the ideas. Also involved is construction of social order. Social order is needed to permit, support, and facilitate an innovation's initial adoption and continued use. The environment in THE GAME seems to be ideal for getting this kind of experience. Consequently, our original notion of using both short and extended simulations in colleges of education was encouraged by our experience with THE GAME. Potential teachers, administrators, and educational researchers would be participants in such simulations. They could

examine their own and others' roles in a context which centered around each trying to achieve task-related ends deriving from their roles. Cycling through roles, participants could develop further valuable insights into roles other than the one they may be specifically training for.

A recent major review of the literature on knowledge utilization (Havelock) makes a strong case for perceiving knowledge utilization as requiring close, collaborative interaction among knowledge producers, development teams, practitioners, and client groups.²² The burden of Havelock's argument is that there is need for continuing, two-way communication among all actors in knowledge utilization to define problems and needs, to translate knowledge into plausible alternative solutions, and to assess the effectiveness of the presumed solutions in resolving the problems to which they are addressed.

Simulations of the sort we are working with in the project seem ideal for facilitating the kinds of interpersonal, inter-role relationships Havelock is urging. They could be used for in-service training for persons already functioning in the process as well as for training of new persons.

One criticism of present educational systems is that educational researchers (knowledge producers) do not get rewarded for producing innovations which educational practitioners can use. Further, generally speaking, teachers (knowledge utilizers) do not get rewarded for seeking and adopting innovations which permit them to do a better job in the classroom. The reward systems and professional

identifications for these two groups are basically independent of each other. With simulations of the sort we propose, we do not have to be content with working with the existing social order. In an open simulation, we can manipulate roles and patterns of interrelationship of participants and build into it reward systems for knowledge producers and utilizers which would be mutually interdependent. Researchers would get rewarded for developing practices which teachers adopt. Teachers would get rewarded for adopting practices which would improve their efficacy in the classroom. With open simulations you can explore, in a dynamic interesting fashion, the kinds of ideal situations which Havelock considers appropriate models for knowledge utilization in education.

Given our experience with this and other simulations, we recommend the following:²³

- a. A series of games in which people who play vital roles in educational knowledge production and utilization work through various ways of relating to each other. These could help increase intercommunicational abilities among such people. Such games might also help them and us to create long-term simulations to be introduced into formal training of teachers, administrators, researchers, etc.
- b. A series of linking games to be used in training field agents. The games would provide linkers opportunities to try alternative strategies and techniques in linking educational researchers and specialists with practitioners.

- c. A series of games conducted by field agents with school personnel, parents, pupils, etc., where participants try new alternatives, discover some of the benefits, bump into the problems, work through adaptations, select what works well, modify or eliminate what doesn't, etc. Since adoption of innovations in schools is often more complicated than that on farms, this application might have the greatest pay-off of all.
- d. A series of games in which N.I.E. personnel, media specialists, communication and learning theorists, parents, adolescents, etc. could work through alternative systems of less formal education. This follows from one of the major recommendations of the Iowa project.

Notes and References

¹All were doctoral candidates in the School of Journalism at the University of Iowa.

²Havelock, Ronald G. Planning for Innovation Through Dissemination and Utilization of Knowledge. Ann Arbor: Center for Research, University of Michigan, 1971.

³For a description see: Thayer, Lee. Studies in the Development of Administrators: II. An Experimental Training Program. Wichita, Kansas: College of Business Administration, Wichita State University, 1964; Louis, Karen Seashore, "Field Agent Roles in Education: Part I." Materials from the USOE Pilot State Dissemination Program. Bureau of Applied Social Research, 605 West 115th Street, New York, N.Y., 10025, January, 1972.

⁴A number of publications and manuals are available on the University of Iowa School of Journalism Simulation. A listing of them will be found in Appendix D.

⁵Havelock, op. cit.; Farr, Richard S., "Knowledge Linkers and the Flow of Educational Information." An Occasional Paper from ERIC at Stanford, September, 1969.

⁶Weinbaum, Marvin and Louis Gold. Presidential Election: A Simulation With Readings. New York: Holt, Rinehart and Winston, 1969.

⁷Guetzkow, Harold et al. Simulation in International Relations. Englewood Cliffs, New Jersey: Prentice-Hall, 1963.

⁸See Orcutt's article in: Guetzkow, Harold (ed.), Simulation in Social Science: Readings. Englewood Cliffs, New Jersey: Prentice-Hall, 1962; see Wing's article in: Boocock, Sarane S. and Erling O. Schild (eds.), Simulation Games in Learning. Beverly Hills: Sage, 1968.

⁹Guetzkow, Harold, Phillip Kotler, and Randall L. Shultz, Simulation in Social and Administrative Science. Englewood Cliffs, New Jersey: Prentice-Hall, 1971; Proceedings of the IBM Scientific Computing Symposium on Simulation Models and Gaming. White Plains, N. Y.: International Business Machines, 1966; Proceedings on Simulation in Business and Public Health. Proceedings of the First Annual Conference of the American Statistical Association (New York Area Chapter) and the Public Health Association of New York City, New York City, March 2-3, 1966.

¹⁰ Spencer, Donald D. Game Playing with Computers. New York: Spartan, 1968; Martin, Francis F. Computer Modeling and Simulation. New York: Wiley, 1968; Uhr, Leonard (ed.). Pattern Recognition: Theory, Experiment, Computer Simulations and Dynamic Models of Form Perception and Discovery. New York: John Wiley, 1966; Coleman, James. "Mathematical Models and Computer Simulation," in Handbook of Modern Sociology, R.E.L. Faris (ed.). Chicago: Rand McNally, 1964; "Simulation," International Encyclopedia of the Social Sciences, Volume 14. New York: Macmillan and the Free Press, 1968, 262-281.

¹¹ Gamson, William A. "SIMSOC: Establishing Social Order in a Simulated Society," Simulation and Games. 2:287-308 (September, 1971); Wolf, C. P. "SIMCANSOC: Simulated Canadian Society," Simulation and Games. 3:53-77 (March, 1972).

¹² Kersh has been instrumental in developing the "classroom simulator." See Kersh, Bert Y. "Classroom Simulation: Further Studies on the Dimensions of Realism." Paper presented at the American Education Research Association, Chicago, February, 1966. Monmouth: Teaching Research, Oregon State System of Higher Education. Other articles by Kersh will be found in the bibliography.

¹³ Gwaltney, Thomas M. EDUSIM: Educational Simulation. Dubuque, Iowa: Kendall/Hunt, 1972.

¹⁴ Some works included: Carroll, Tom W. Simulation of Innovation Diffusion in a Rural Community of Brazil. A research project funded by the United States Agency for International Development, Department of Communication, Research Report, Computer Institute for Social Science Research, Michigan State University, East Lansing, Michigan, May, 1969; Deutschmann, Paul J. A Machine Simulation of Information Diffusion in a Small Community. Research Report, Programa for Interamericano de Informacion Popular, San Jose, Costa Rica, September 30, 1962; Hanneman, Gerhard J. "Simulating Diffusion Processes," Simulation and Games. 2:387-404 (December, 1971). Other works can be found in the Bibliography.

¹⁵ Rogers, Everett M. and A. Saxena, "Change Agents, A Simulation Game for Training in Diffusion Strategies." Working paper, Department of Communication, Michigan State University, July, 1968; Shen, Teresa Chou. "Toward a Reconceptualization of the Role of Change Agents in the Diffusion and Adoption of Innovations." Unpublished Ph.D. dissertation, University of Iowa, 1971.

¹⁶ Mulac, Margaret E. Educational Games for Fun. New York: Harper and Row, 1971.

¹⁷ For other accounts developing ideas highly similar to the open-closed dimension, see: Thayer, Lee, "Systems, Games, and Learning." A chapter for a book edited by R.S. Lee entitled Experience Learning. New York: Basic Books. Prepared in Fall, 1970; Ruben,

Brent D., "The General Problem-Solving Simulation." A chapter for a book edited by R.S. Lee entitled Experience Learning. New York: Basic Books (in press); Lee, Jae Won, Malcolm S. MacLean, Jr., and Albert D. Talbott, "Simulation as a Metaphoric Method of Communication Education." A paper presented at the International Communication Association, Atlanta, Georgia, April 1972; MacLean, M.S., Jr., and Talbott, A.D., "Approaches to Communication Theory Through Simulation and Games." A paper presented to a joint session of the Speech Association of America and the International Communication Association, New York City, December, 1969; Lee, Robert S., "Experience Learning." An unpublished manuscript, February, 1970.

¹⁸ See Appendix A for the specific rules used.

¹⁹ This was adapted from Chapter 1 of: Organick, Elliott I. A Fortran IV Primer. Reading, Mass.: Addison-Westley, 1966.

²⁰ See Appendix B for the proposed schedule for THE GAME as it was to be played in Los Angeles.

²¹ See Appendix C for the proposed schedule for THE GAME as it was to be played in Atlanta.

²² Havelock, op cit.

²³ C. West Churchman: in his research memo for this project, "Statistical Methodology of Information Systems," helps clarify the logic behind our recommendations here. See particularly the last five or so pages of the Churchman memo.

Appendix A

Rules of THE GAME

1. Anything not specifically prohibited in these published rules is permitted. If there are any disputes or problems they will be settled by THE GAME's Directors.
2. THE GAME involves participants in three different roles. These roles are assigned by the Directors prior to THE GAME, and participants are not allowed to change roles during the course of THE GAME.
 - a. ENTERPRISES are three-person teams who work to develop and sell instructional packages for teaching the use of the Paper Computer.
 - b. SCHOOLS consist of two Teachers who buy the learning packages developed by the ENTERPRISES and use them to teach PUPILS about the Paper Computer.
 - c. PUPILS are individual participants who enroll in and attend classes in one of the SCHOOLS so that they will be able to score well on the Paper Computer Certification exam which is given near the close of THE GAME by the Directors.
3. Scores on the exam determine the winners of achievement awards offered by the Directors.* There is a total of 160 points to be awarded to ENTERPRISES, SCHOOLS, and PUPILS.
 - a. PUPIL points: the five top-scoring PUPILS receive 25, 20, 15,

*Awards could be in a variety of forms: tokens, colored ribbons, certificates, books, money or other things of value.

- 10, and 5 points respectively;
- b. SCHOOL points: 25 for the SCHOOL whose PUPILS have the highest average score; 10 for the SCHOOL which taught the highest-scoring individual PUPIL.
 - c. ENTERPRISE points: 40 to the ENTERPRISE having the highest average score for all PUPILS in all SCHOOLS using their teaching package; 10 to the ENTERPRISE whose package was used in the top SCHOOL.
4. Each ENTERPRISE and SCHOOL must fill out and file a charter form with THE GAME's Directors at the beginning of THE GAME. Each charter includes (a) the name of the ENTERPRISE or SCHOOL, (b) a brief statement of the group's organizational structure and any operational policy, (c) designation of a Chief Executive Officer who is the official document-signer for the group, and (d) a description of how the group's points will be divided at the close of THE GAME.
 5. SCHOOLS and ENTERPRISES must operate in strict accordance with their charters at all times. Any changes in the charters must be authorized and approved by the Directors.
 6. Each ENTERPRISE must prepare an instructional package which it plans to sell for points to the SCHOOLS. The packages can be as elaborate as the ENTERPRISES wish to make them and the SCHOOLS are willing to buy. Among the things which might be included in a package are textbooks, visual aids, programmed learning texts, teachers' manuals, self-instructional material, aptitude or achievement tests, promotional and recruiting materials, sugges-

tions on STUDENT contracts, and any number of other things.

7. ENTERPRISES sell their learning packages to the SCHOOLS for points by entering into a written contract with each SCHOOL they sell to, specifying the exact terms and conditions of the sale. A copy of this contract must be on file with the Directors before a SCHOOL may begin to enroll PUPILS. The contract must be signed by the Chief Executive Officer of the SCHOOL and ENTERPRISE. Contracts for the sale of learning packages may involve any mutually agreeable condition(s) arranged by the ENTERPRISE and SCHOOL involved; among the possibilities are: a) a flat fee for the learning package; b) a fixed rate paid for each PUPIL enrolled by the SCHOOL; c) a percentage of each PUPIL's enrollment fee; d) a percentage of the points won by the SCHOOL; or e) a performance contract whereby the SCHOOL pays points only if its PUPILS achieve an acceptable level of proficiency.
8. Every ENTERPRISE must sell a learning package to at least one SCHOOL, but no ENTERPRISE may sell to all SCHOOLS. Every SCHOOL must purchase a package for use in both instructional sessions. Beyond the terms of their contracts, SCHOOLS are not restricted in their use of the learning packages.
9. Each PUPIL starts THE GAME with a fixed number of points used to pay enrollment fees or to buy instructional material from the SCHOOLS. The SCHOOLS then use the points to buy from the ENTERPRISES. THE ONLY POINTS ALLOWED IN THE GAME ARE THOSE PROVIDED BY THE DIRECTORS. If there are 24 PUPILS in THE GAME, with 5 points each, there would be a total of 120 points available for SCHOOL

tuition fees.

10. SCHOOLS recruit and enter into enrollment contracts with PUPILS. Copies of these contracts must be given to the GAME'S Directors. The initial contract must be for both instructional sessions. The enrollment contract must be signed by the Chief Executive Officer of the SCHOOL and the PUPIL and must specify the enrollment fee. Some possible arrangements for the enrollment fee might include: a) a flat fee; b) a percentage of anticipated points awarded; c) payment for only instructional services used by PUPIL; d) some kind of performance contract; and e) whatever other mutually agreeable arrangements which do not violate the rules.
11. To avoid an educational monopoly, there is an upper limit on enrollment per SCHOOL. For example, if there are 24 PUPILS and 3 SCHOOLS, a maximum of 10 PUPILS is allowed per SCHOOL. If there is a different number of PUPILS and SCHOOLS, the maximum enrollment will be modified proportionately, and announced by THE GAME'S Directors.
12. PUPILS not under enrollment contracts just prior to the start of either teaching session will be assigned to SCHOOLS with vacancies. These PUPILS must sign an enrollment contract and pay the appropriate fees to the SCHOOL.
13. If for some reason a student changes SCHOOLS (wishes to change, is expelled or fails or whatever) at the end of the first session, enrollment changes, including fee refunds, are permitted prior to the second instructional session, unless otherwise specified in a given SCHOOL'S contract.

14. Promotional or instructional contact with SCHOOLS or PUPILS by the ENTERPRISES prior to playing sessions of THE GAME is prohibited.
15. During THE GAME, ENTERPRISES may promote their packages among the SCHOOLS but may not promote them directly to the PUPILS.
16. ENTERPRISES may take NO ACTIVE PART in any SCHOOL'S work with PUPILS, nor participate in direct instruction of PUPILS IN ANY MANNER. They may conduct training sessions for the Teachers of the SCHOOLS which have purchased their packages.
17. Members of the ENTERPRISES may observe the teaching in SCHOOLS WHERE THEIR OWN PACKAGES are in use, and may consult with teachers as necessary ONLY outside the classroom.
18. If a SCHOOL doesn't earn enough points to pay its debts, its assets (enrollment and awarded points) are pro-rated among its creditors.
19. All assets of SCHOOLS or ENTERPRISES are to be distributed among the members in whatever manner they see fit or have agreed upon at the outset of THE GAME.
20. Collusion, price fixing, and kick-backs are all prohibited. Violations automatically exclude those involved from winning points.

REMEMBER: ANYTHING NOT SPECIFICALLY PROHIBITED IN THESE PUBLISHED RULES
IS PERMITTED.

THE GAME

Schedule for Saturday, April 15, 1972*
Southern California Journalism Education Association Convention
Los Angeles, California

Beginning at:	Enterprise members	Teachers	Pupils
9:30	Orientation - Regency Room	Orientation - Regency Room	
9:45	Meet with the schools to sell your packages and train the teachers to use them.	Shop among the enterprises to select and purchase a teaching package; then learn to use it.	
11:00	"	"	Orientation; begin registrations.
11:15	"	Latest possible time to begin enrolling students.	Choose a school and enroll in it for teaching sessions.
12:00	You may observe classes in schools using your teaching packages; or you may continue training teachers.	First class session: School A) Conf. Room A B) Conf. Room B C) Conf. Room C	First class session: School A) Conf. Room A B) Conf. Room B C) Conf. Room C
1:00	Lunch break	Lunch break	Lunch break; study, meet with teachers as you need and they are available
2:00	Consult and advise schools using your teaching package if they need help.	Counsel individual students, register any "transfer" students, or consult with the enterprise whose package you are using if you need help.	Consult with your teachers if you need help, register with a new school if you've decided to "transfer" schools, study or socialize in the lounge.
2:30	Observe the schools using your teaching package if you wish.	Second class session; same rooms as earlier.	Second class session; same rooms as earlier.
3:30	Take Certification Exam.	Take Certification Exam.	Take Certification Exam to determine proficiency and award winners.
4:00	General debriefing, discussion, analysis for all participants	General debriefing, discussion, analysis for all participants - Regency Room.	

*Schedule which was given to participants at the convention.

Appendix B

THE GAME

Schedule for Thursday, April 20 and Friday, April 21, 1972*
International Communication Association Convention
Atlanta, Georgia

Beginning at:	Enterprise members	Teachers	Pupils
Thursday:			
1:00	Orientation - Alabama Suite	Orientation - Alabama Suite	
1:15	Meet with the schools to sell your packages and train the teachers to use them.	Shop among the enterprises to select and purchase a teaching package; then learn to use it.	
3:30	"	"	Orientation - Alabama Suite
4:00	"	Latest possible time to <u>begin</u> enrolling students.	Choose a school and enroll in it for teaching sessions.
Friday:			
4:15	You may observe classes in schools using your teaching packages; or you may continue training teachers.	First class session: School A - Mississippi Room B - Louisiana Room C - Georgia Suite	First class session: School A - Mississippi Room B - Louisiana Room C - Georgia Suite
5:10	Consult and advise schools using your teaching package if they need help.	Counsel students, register any "transfer" students, or consult with "your" enterprise if you need help.	Consult teachers, register with a new school if you've decided to "transfer," study, or socialize.
5:30	Observe the schools using your teaching package.	Second class session; same rooms as earlier.	Second class session; same rooms as earlier.
6:30	Dinner Break	Dinner Break	Dinner Break
7:30	All participants take Certification	Exam to determine proficiency and	Prize winners - Miss.-Louisiana Suite.
8:15	General debriefing, discussion, and analysis for all participants	for all participants - Mississippi-Louisiana Suite.	

*Schedule which was given to participants at the Convention.

Appendix D

Publications on "New" Undergraduate Program
School of Journalism
University of Iowa

- Thayer, L., "Studies in the Development of Administrators: II. An Experimental Program." College of Business Administration, Wichita State University, 1964. (Excerpts of a report.)
- MacLean, M.S., Jr., "A Process Concept of Communication: A Position Statement for the Educational Policies Committee." School of Journalism, University of Iowa, November 17, 1966.
- Budd, R.W., and MacLean, M.S., Jr., "Applying Communication Principles to Communication Education." A paper presented at the 15th Annual Conference of the National Society for the Study of Communication, Boulder, Colorado, August 29, 1967.
- MacLean, M.S. Jr., "On the Education of Responsible Newsmen." A paper presented to the 23rd Annual Conference of the American Association for Public Opinion Research, Santa Barbara, California, May 8-11, 1968.
- MacLean, M.S., Jr., "Theory, Method and Games in Communication." A paper presented at a meeting of the Behavioral Science Section of the International Association for Mass Communication Research, Ljubljana, Yugoslavia, September 2-5, 1968.
- MacLean, M.S., Jr., and Talbott, A.D., "Approaches to Communication Theory Through Simulation and Games." A paper presented to a joint session of the Speech Association of America and the International Communication Association, New York City, December, 1969.
- Ruben, B.D., and Talbott, A.D., "The Communication System Simulation: An Overview." School of Journalism, University of Iowa, January, 1970.
- MacLean, M.S., Jr., "Journalism Education at the University of Iowa." A paper based on a talk to alumni of the University of Iowa School of Journalism, New York City, April, 1970.
- Thayer, L., "Systems, Games, and Learning." A chapter for a book edited by R.S. Lee entitled Experience Learning. New York: Basic Books.
- Talbott, A.D., and Straus, H.E., "The Communication System Simulation: A Case Study in Intermedia." A chapter for a manual edited by B.D. Ruben entitled Intermedia: Instructor's Manual. Iowa City: University Associates Press.

"The New Experience Based Journalism." A pamphlet prepared for the Admissions Office designed to be sent to prospective undergraduate students, School of Journalism, University of Iowa, 1971.

"Undergraduate Program in Journalism at the University of Iowa." Excerpts from a Pre-Visit Accreditation Report prepared for the American Council on Journalism Education having to do with the University of Iowa School of Journalism, July 14, 1971.

Straus, H.E., Deats, T.S., Talbott, A.D., Turney, M., Thayer, L., and MacLean, M.S., Jr., "An Extended Game Simulation for Teaching and Learning in Journalism Communication." A paper presented at the 10th Annual Symposium of the National Gaming Council, Ann Arbor, Michigan, October 7-10, 1971.

"Communication: Challenge for Journalists." A newsletter about the School of Journalism, University of Iowa, prepared by students at the School, Winter, 1972.

Sabine, Gordon A., "What University of Iowa Journalism Students Think of the University of Iowa School of Journalism." A Talk given to Journalism students, April, 1972.

Lee, Jae Won, Malcolm S. MacLean, Jr., Albert D. Talbott, "Simulation as a Metaphoric Method of Communication Education." A paper presented at the International Communication Association, Atlanta, Georgia, April, 1972.

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Special Note

The documents listed in this appendix are ones which are currently (Fall, 1972) available upon request from the School at a nominal charge. The only exception to this is Intermedia: Participant's Manual which is only available from the publisher. This list of publications is a selective one. These publications are basically concerned with the "new" undergraduate program of the School of Journalism at the University of Iowa.

Since the Fall, 1969, the basic journalism major at Iowa has consisted of eight courses taken two at a time for four consecutive semesters (two school years). In each pair of courses (accounting for six credits), taken each of the four semesters, one is a more traditional lecture-discussion-assigned reading-exercises-written assignment-examinations variety, and the other is a large scale extended simulation. Each student participates in the simulation for two years. There are about 250 participants. The simulation accounts for one-half the 24 credit hours required of a general journalism major. Generally speaking, the simulation replaces a significant part of the traditional writing-reporting-editing laboratories in which students write, report and edit for a single instructor. Shortcourses are still available in which students may opt for additional conventional instruction in these areas to supplement their simulation work. Also, students are strongly urged to seek out opportunities for on-the-job training within the media for which they hope to work after graduation. The Iowa simulation is not an extra activity in which students may or may not participate. It is a required activity for all undergraduate journalism students and is a key part of the Iowa journalism program. It is used as a major teaching-learning vehicle.

The publications in this list are concerned with all aspects of the undergraduate program at Iowa just briefly described. This would include the planning, development, philosophy, rationale, objectives, structure, requirements, operation, as well as the concepts and theory underlying the program. These publications are not only concerned with the simulation but also with the basic program in which the simulation is embedded. Knowledge of the context is important to a basic understanding of this particular use of simulation techniques.

Appendix E

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Appendix F

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GAMES AND SIMULATIONS

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FINAL REPORT: PILOT STUDY #8

A "Natural" History of Ideas Approach to "Knowledge" Utilization

Project Coordinator: Elizabeth S. Conley

This pilot study was conducted in order to probe the theory that certain kinds of "knowledge" that could be helpful to teachers in the educational enterprise could better be disseminated in an "embodied" form than in a more impersonal and abstract form such as print. This "embodiment" was to take the form of a prototype of certain exhibits that might be included in a museum of ideas about teaching and learning.

Three exhibits were designed to test out this theory. The exhibits included two films, one about an open classroom, the other a split screen film that contrasted the kind of learning going on in school with types of learning occurring outside the school. The third exhibit was a diarama of John Dewey and a scene from the Chicago lab school. This exhibit included a tape with a facsimile of Dewey's voice quoting some of his statements about experiential education. In the two weeks the exhibits were on display 60 people came in to visit. Most were involved, or planning to be, in education. The evaluation of the project was informal. Comments of the participants and their general attitudes were noted.

The most encouraging aspects of the viability of such a project was the general enthusiasm and interest of the visitors.

Most seemed willing to remain and ask questions about the ideas presented as well as about the project itself. Over one-fourth requested further information about some of the ideas presented in the exhibits.

Rationale

Much of the "knowledge" generated by research in education is reported to the potential consumers of such "knowledge" in an abstract, impersonal form. However, since experience seems to be the most relied upon method that teachers use to acquire knowledge about education, it seemed feasible that the closer educational research could come to first person experience the more usable the information would be for the teacher. One method for approximating this kind of experiential feeling would be to try to "embody" knowledge in a form similar to a museum of natural history.

Besides the advantage of utilizing knowledge in an "embodied" form, the museum as a vehicle for knowledge utilization capitalizes on several other areas of human conduct. First, the museum-goer is a self selector. There are no requirements that an individual has to visit any museum, or once there follow any pre-set pattern of exhibits or specific time investments. This freedom of movement and self-selection encourages the museum-goer to rely on his own curiosity and felt needs in viewing the exhibits he chooses. He also has the opportunity to do a good bit of browsing in the course of visiting a museum that may act as a catalyst for incorporating new ideas into his educational framework. Leisure time

is frequently used for visits to the museum. In this the museum tends to become a sort of "play-ground" which is conducive to a free play of the imagination. This might be fertile ground for helping the individual increase his desire to inquire independently.

Since it was not feasible at this time to construct even a very small museum, we developed only three exhibits to serve as prototypes of some kinds of features that might appear in such a museum. The exhibits were billed as a "Mini-Museum" so that potential visitors would use this as a frame of reference.

One of the exhibits held some similarity to the classroom simulation films developed and used by Bert Kersh at Oregon State. Kersh studied the usefulness of such simulations for training elementary school teachers. Kersh's method included ways of "feedback" that might be very useful in constructing future exhibits. In this manner the participant can interact with the projected situation such as the open classroom and experience the situation much more realistically. This method would more closely approximate the "Link trainer" model in which the participant simulates a real experience.

Some of the same ideas are being carried out in a film series developed by Universal Education and Visual Arts entitled "Museum Without Walls." These films focus on artists such as Picasso, Goya, and Le Corbusier and attempt to give the art experience kinetically much as the artist himself would feel it. The success of these projects as well as the remarkable attendance

at outstanding museums such as the Smithsonian or Chicago Museum of Science and Industry seem to indicate strongly that a museum approach to knowledge utilization holds great promise.

Museums are a rich part of our American culture. One only has to travel in the summertime and visit some of the historical spots in our country which have gathered together materials and displays and watch the crowds who are eager and enthusiastic. They are even willing to wait in lines and pay admittance fees to view such things as the colonial town of Williamsburg, Virginia, the estate of Thomas Jefferson at Monticello, the site of the first airplane flight at Kittyhawk and countless other spots of historical interest. In some ways this vital interest is utilized at Disneyland where many of the features are reconstructions of past, present or future events, but designed so that the viewer can either participate or at least experience the event in some type of embodiment. It seems to work exceptionally well in the museums already set up as well as in Disneyland. The various nonprint historical, geographical, topological and other aids developed to enrich the experience of visiting our national parks have also been very effective. It may have some of the same impact in the area of education.

Description of the Project

Three exhibits comprised this prototype museum on ideas about teaching and learning.

The first was designed to give the viewer some vicarious experience of what it would be like to teach and learn in a school that was based on the concept of the "open classroom." This particular concept was chosen because of the growing interest in the open classroom which has been reflected in recent television documentaries on education as well as in the popularity of authors such as Charles Silverman, Johnathan Kozol, John Holt, and Neil Postman, who frequently refer to this idea.

I had three years teaching experience in an inner-city high school using many of the concepts behind the "open classroom" and participated in video taping two documentaries on the school. With this experience I felt that I was in a position to help make a film that would hold enough dramatic appeal for interest without undue distortion of what an "open classroom" is like on a day-to-day basis.

The exhibit was constructed by making a sound film in a local school which has been using the "open classroom" approach for the last three years. The film was then shown in an enclosed and darkened space where the viewer set comfortably in a sound chair so that he was as completely involved with the film as possible. Henry Sabin School in Iowa City was chosen as the school in which the film was made. Sabin is an older school in an older section of the city. It seemed a good idea to use this kind of situation rather than a brand new school with latest equipment, in order to emphasize that an "open classroom" depends more on the force of

ideas and people than on the physical plant or structure. Originally, the film was planned to be from five to seven minutes in length. However, it was lengthened to ten minutes because of the richness of the environment of this particular school.

The film used one of the teachers and a third grade student as narrators. The film opened with a teacher arriving at school and joining in one of the frequent discussions held in the faculty room. Next, students entered school and aspects of student activities were shown. These included "contract learning," student-led discussions on urban planning, an extremely active spelling "race," student tutors, and open use of the facilities of the school by students. Although these sequences showed only a small fraction of the activities going on in the school, the principal, faculty, and students were pleased with the integrity of the overall effect.

The second exhibit consisted of two 8mm films which were shown simultaneously on two rear screen projectors. One film depicted ordinary classroom activities such as answering questions from a teacher, filling out worksheets, moving through halls in ranks and working on projects. The other depicted learning activities outside the school such as shopping in a supermarket, riding in a car, playing games, examining flora in a park, apprenticing in construction, and so on. Accompanying these films was an audio tape suggesting ways of learning outside a formal school curriculum and ways that teachers could utilize such learning within the school. The audio tape had lively music as introduction and background.

The third exhibit was a diarama featuring a miniature wax figure of John Dewey engaged in writing at a desk. On one side of the diarama three other figures depicted a school situation at the lab school in Chicago which Dewey directed for several years. An audio tape with a facsimile of Dewey's voice commenting on experiential education accompanied the diarama. Selected quotations from Dewey's book Experience and Education were used for the tape along with a brief introduction about John Dewey and a resume after the Dewey quotation. John Dewey was included for historical interest and as a forerunner to many of the philosophical ideas behind the "open classroom." He has been a profound thinker and influencer of some of the educational theories in the United States and as such seemed to merit an exhibit in even such a limited project.

Location

The prototype museum was situated in one of the education buildings of the University of Iowa campus which houses the education library. The thinking behind such a location was that many teachers would at one time or other during the summer session need the library and from there visit the museum. Because of space limitations, the room assigned was somewhat out of the way, thus requiring that anyone who visited the museum had to make a definite decision to do so.

Results

During the two week period 60 persons visited the museum.

They stayed an average of 17 minutes, ranging from a few seconds to over an hour. It took about 17 minutes to complete all three exhibits. Twenty-eight per cent requested further information about some of the ideas presented in the museum. Many of the museum-goers lingered to ask questions about some of the concepts presented, about the technics used in the museum itself, and to relate experiences of their own on subjects presented in the exhibits. The museum-goers were almost without exception either teachers or students preparing for teaching or other education personnel such as counselors. One visitor was a museum director.

One woman came back three times, once herself and two times subsequently to bring her daughter and then her son. She was interested in the educational ideas for herself and for her daughter. She thought the son would be interested in the machines.

Some Comments Made By Participants

"I've been interested in the open classroom idea for a long time, I was really glad for a chance to see it."

"Those are fascinating figures. How did you make them?"

"Is this exhibit going to travel? I would like to put my name down for my school to have it if it is."

"What's the point of this exhibit? . . . just to show that kids learn outside of school? Everyone knows that anyway."

"I'm taking a seminar on creativity in the classroom and these films really fit what we're discussing. I asked everyone in

the seminar to come in and look at it. Do you have the materials I requested ready yet? I would like to use them for the seminar."

Time Schedule

The museum was in operation from June 21 until July 7, 1972. This gave a total of 11 open days discounting weekends and holidays. The schedule was delayed from the previous time schedule since there were several problems with lab work on the films used in the museum. We used 8mm film loops for the exhibits since they could be easily automated. However, the laboratory found it difficult to reduce the film.

Notification to the Public

A total of twenty-five signs were posted on and around the University campus inviting the public to visit a "Mini-Museum on Ideas About Teaching and Learning." This was thought sufficient to let interested persons know about the museum.

Other Notes

Originally the prototype museum was conceived as a completely automatic venture. However, because of technical problems it was necessary to have someone in attendance at all times. A young high school student volunteered for the project and was quite an asset as an informal recorder of comments and reactions to the museum.

It is interesting to note that proctoring the museum seemed to prove a most worthwhile learning experience for the high school attendant. Although this was not a planned consideration, I am hopeful that many of the teachers visiting the museum became aware of the value of such an experience for a high school student.

Evaluation

In dealing with communication systems it is almost impossible to measure in any way or to evaluate in objective terms just how much "use" any particular piece of data will be put to by any individual. Therefore, in this project, while I can document the number of individuals who went out of their way to come to visit the exhibits, can list the amount of time spent and number of exhibits that an individual looked at and followed through to the end, and the percentage that requested further information dealing with the topics in the museum, I cannot state what this means with any degree of precision. What I can do, and think that in the long run this is more helpful, if less precise, is give my impressions of what was happening with this display.

First, I would like to give a little of my own background as I think this will be helpful to explain the base from which I formed my impressions and intuitions about the project. I have been a teacher in secondary schools for six years. The last three years I taught at St. Mary's Center for Learning in Chicago which began an experimental program the year I started there.

I was instrumental in developing and implementing the curriculum which had as its primary aim the structuring of an environment in which students and teachers could develop optimally as free, inquiring agents with a healthy concept of their own worth as persons and with the power to make decisions that would be instrumental for shaping their own lives.

I was extremely hopeful from this viewpoint about the success with which a full scale museum about education might meet. Thus I looked carefully at the amount of time individuals spent looking at the exhibits and the kinds of questions asked. For some viewers the exhibits offered new information. This was especially true for the exhibit on the open classroom. Frequently visitors lingered to ask more specific questions about the open classroom. For others, the exhibits sometimes reinforced their own practices or represented an idea they had already thought about and discarded. In this case they did not usually pursue any discussion.

The necessarily limited scope of this prototype "museum" was a drawback as far as serving the needs of the individuals who chose to view the exhibits. The participants came with questions and with some degree of curiosity. Some I spoke with indicated an interest in viewing other expanded exhibits. It seems feasible that by expanding and refining exhibits on ideas about teaching and learning, the seekers of information on these subjects would be more satisfied.

The next phase of this project seems to lie in developing other like exhibits in a more permanent and durable form. Such exhibits could easily lend themselves to a travelling arrangement such as a mobile unit that could travel from place to place, perhaps as an adjunct of Regional Centers such as we have in Iowa. Some museums already have such travelling units and use them for particular displays, such as the one on Indian culture at the University of Illinois in Carbondale.

FINAL REPORT: PILOT STUDY #9

Commercial or PBS Television Experiment

Project Coordinator: Lee Thayer

Our position on how best the objectives of this Study (see Appendix A) might best be realized has changed over time as we got more deeply involved in researching the backgrounds for it and assessing the various alternative modes of implementation. However, we feel it would serve no presently-useful purpose to describe those changes and how they came about. Rather, it would seem to us most useful to describe our present conclusions about how the objectives of the Study might best be achieved.

As explained in an earlier Progress Report #3 (30 April 1972), this Study was not carried through to the experimental stage. But it remained very much a part of our central deliberations, and in the spirit of our major study conclusions.

Consistent with our major Policy Recommendations, we believe that an initial step for the OE in redirecting its focus toward education rather than schooling could most efficaciously be that of developing a film documentary (or documentaries), to be entitled "Man and Education." The objective of this documentary (or documentary series) would be dramatically to portray the relationship between education and society, from a number of perspectives--e.g., social organization, consciousness, social

control, social development, the humanities, literacy, mental health, the quality of human life, etc., etc.--in order to show that education is central to all human societies, past and present, and to show the different ways in which educational objectives have been stated and means of education invented, throughout history and across different societies and cultures. We believe that this is a necessary first step toward putting our own (U.S.) problems and concerns in their proper perspective. From that point, and on the basis of the understandings achieved in this documentary, a great many satellite projects could be developed to capitalize on this start--videotapes, audio cassettes, print materials, instructional packages, newsletters for parents, programs for children, etc. It seems to us that this foundation has been missing, and that it could contribute significantly to many other NCEC and OE programs and efforts.

It is our studied conclusion that such a documentary (or documentary series) could go far toward establishing a foundation and a framework for implementing the sorts of efforts implied in our major Policy Recommendations. To this end, we recommend further analysis of the possibilities of this effort, and the development of a specific proposal for its realization.

APPENDIX A

Pilot Study #9

Commercial or PBS Television Experiment*

This is the only pilot study which cannot at this time be fully described. In general, however, it concerns the design rationale for a film or video tape series for NET, commercial, or cassette television.

The purpose or aim of this exploratory study is consistent with the conceptual and hypothetical bases underpinning the other studies described in this document. Specifically, our assessment of the research literature on knowledge utilization, and our own work to date, suggests to us the strategic need for redefinition of educators' roles or functions in contemporary U.S. Because education in the U.S. is very much a public concern, we believe that this redefinition can ultimately be effected only in the popular culture and in the popular media. Educators, in general, seem to me more sharers than creators of popular (or "public") opinion. Thus this is the "medium" through which they see themselves and their social tasks or functions.

*Source: Interim Report, December 1971, pp. 67-69.

We believe that it would be feasible to design and evaluate a film (video tape) series for mass distribution:

- A) which teachers would identify with and view regularly;
- B) which would begin to effect a change in self-definition from "teacher" to "learning engineer" or "learning situation designer,"¹ and
- C) which would indirectly provide a level of "current awareness" with respect to new ideas, new "knowledge," etc., in education.

While the specific details are not clear at this time, we anticipate that the theme and the manner of presentation would capitalize on the same appeals which inhere in what teachers do read and view--i.e., the comics, popular television, digests of best sellers, "personal" stories (in print or on screen), and so on. The product of our effort will be the detailed design-rationale for such a film (video tape) series, and some very modest test results or certain basic ideas--such as the use of animation vs. live actors, two or three possible plot structures, etc. We intend to seek the professional help we need to develop this design-rationale, mostly available on our own campus.

Notes and References

¹On this redefinition, cf. L. F. Carter, "Knowledge Production and Utilization in Contemporary Organizations," ED01740, October, 1967; and R.G. Havelock, "Dissemination and Translation Roles in Education and Other Fields: A Comparative Analysis," ED015535, October, 1967.